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ROCKY FLATS

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL
RESTORATION MANAGEMENT

DOE-RFFO
ENVIRONMENTAL
RESTORATION
PROGRAM

Monthly Report for
December 1994



January 20, 1995



ADMINISTRATIVE

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EXECUTIVE SUMMARY

SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR DECEMBER 1994

The thirty-day extension request for the Operable Unit (OU) 1 Feasibility Study (FS) and milestones was approved on December 16, 1994, extending the FS due date to January 23, 1995.

The Department of Energy (DOE) gave a presentation to the regulatory agencies on December 7, 1994, to present the technical justification to end the extended operations at the OU 2 Test Site 1. Representatives from the regulatory agencies agreed to end extended operations on December 16, 1994. DOE wants to focus resources on an accelerated action at Individual Hazardous Substance Site (IHSS) 110. The fate of Test Sites 2 and 3 of the Subsurface Interim Measure/Interim Remedial Action (IM/IRA) will be discussed in another presentation to the regulatory agencies that will take place in January 1995.

The final sampling event to collect OU 4 Pondcrete samples at the 904 Pad was completed on December 20, 1994. The 200 pounds of very soft "crete" was shipped to the subcontractor laboratory in December 1994.

OU 4 sludge removal (vacuuming) is proceeding with 211 loads removed since October 1994. The number of work days per week has been increased in an effort to accelerate sludge transfer. As of December 19, 1994, approximately 60,000 gallons of sludge/water remain in the 207C Pond, but water may be added to mobilize the remaining sludge. The revised estimated date to "empty" the 207C Pond is January 20, 1995, which is the IAG milestone date. This is an increase from previous predictions.

The OU 7 Proposed Action Memorandum received final approval from the Colorado Department of Public Health and Environment (CDPHE) on December 14, 1994. This date met the IAG milestone date established for this interim action.

The OU 15 Final Phase I Resource Conservation and Recovery Act Feasibility Investigation/Remedial Investigation (RFI/RI) Report was submitted to the regulatory agencies on December 19, 1994, approximately two weeks ahead of the Interagency Agreement (IAG) milestone.

Approval of the Industrial Area (IA) Interim Measure/Interim Remedial Action (IM/IRA) Decision Document was received from the EPA on November 28, 1994. The CDPHE approved the Final IM/IRA Decision Document the week of December 19, 1994. The development of the Implementation Plan for the proposed actions is continuing, and the procurement process for the equipment and the subcontractor support has begun. EPA provided comments and a written response to comments was provided to the regulatory agencies on December 21, 1994.

On December 20, 1994, the regulatory agencies and DOE met to resume the negotiations for the Rocky Flats Cleanup Agreement. The meeting agenda included the discussion of the proposed common ground for resolving the issue of nonemergency removals, the Proposed Action Memorandum to the IAG, plutonium disposition, and the status of the Rocky Flats Cleanup Agreement schedules, baselines, milestones, and the Tolling Agreement.

IAG PERFORMANCE INDICATORS FOR MONTHLY REPORT

<u>Number of IAG Table Six Milestones To Date</u>	<u>Current Fiscal Year (FY) 95</u>	
	<u>(10/1/94 - 9/30/95)</u>	<u>Since IAG Inception</u>
Scheduled (including approved extensions)	7	134
Met	7	104
Extensions Granted	9	58
Extensions Denied	0	8
Remaining this FY 94 (to 9/30/95)	30	n/a
Added	1	11
Deleted	1	5

<u>Deliverables in Review by Regulators</u>		<u>Date Submitted/Completed</u>		<u>Date Review was completed</u>	
<u>Project</u>				<u>EPA</u>	<u>CDHPHE</u>
OU 1 Remedial Action Plan/ Proposed Plan		22 Nov 94			
OU 1 Draft Corrective Measures Study/Feasibility Study		25 Aug 94			
Revisions to OU 1 Phase III RFI/RI Report*		15 Jun 94			
OU 2 (Preliminary) Draft Phase II RFI/RI Report		16 Dec 93			

* The DOE/RFFO dedicated cadre is convening to resolve the programmatic issues.

<u>IM/IRA Status</u>	<u>Gallons Treated</u>
OU 1 881 Hillside Treatment	2,681,578 gallons
OU 2 Surface Water IM/IRA Treatment	24,799,200 gallons
OU 2 Subsurface IM/IRA Treatment (Soil Vapor Extraction)	1,031 pounds
OU 4 Water Management Tasks (Interceptor Trench System and Pond Water)	4,900,694 gallons

<u>IAG Document Deliverables Due Next Six Months</u>	<u>IAG Approved Planned Date</u>	<u>Current Projected Completion Date</u>	<u>Comments</u>
OU 1 Final Corrective Measure Study (CMS)/FS Report	23 Jan 95	To be determined	Additional delays expected
OU 1 Final Proposed Plan	27 Apr 95	To be determined	Additional delays expected
OU 2 Draft Phase II RFI/RI Report	30 May 95	30 May 95	On schedule
OU 2 Corrective Design/Remedial Design Work Plan	15 Jun 95	15 Jun 95	On schedule
OU 4 All Solar Ponds Emptied of Water and Sludge	20 Jan 95	20 Jan 95	On schedule but may slip
OU 4 Final Phase I Proposed IM/IRA	10 Feb 95	10 Feb 95	On schedule
OU 4 IM/IRA Responsiveness Summary	09 Jun 95	09 Jun 95	On schedule
OU 6 Draft Phase I RFI/RI Report	21 Jun 95	21 Jun 95	Extension requested
OU 7 Release Final Leachate Collection Responsiveness Summary and Interim Measure/Interim Remedial Action	22 Mar 95	22 Mar 95	On schedule

OU 9 Draft Phase II RF/RI Work Plan	10 Mar 95	12 Aug 05	Delayed
OU 9 Draft Phase I Proposed IM/IRA Decision Document	01 May 95	30 Sep 05	Delayed
OU 10 Final Phase I RF/RI Report	30 Jan 95	13 Apr 00*	Delayed
OU 10 Phase I Proposed IM/IRA Decision Document	26 May 95	26 Feb 18	Delayed
OU 10 Draft Phase II RF/RI Work Plan	27 Jun 95	25 May 17	Delayed
OU 13 Final Phase I RF/RI Report	11 Jan 95	19 Mar 99*	Delayed
OU 14 Draft Phase I RF/RI Report	20 Dec 94	07 Aug 98*	Delayed
OU 14 Final Phase I RF/RI Report	23 May 95	21 Jan 99	Delayed

<u>Overdue Deliverables</u>	<u>IAG Approved Planned Date</u>	<u>Current Projected Completion Date</u>	<u>Comments</u>
OU 8 Draft Phase I RF/RI Report	14 Feb 94	22 Jul 03*	Overdue
OU 8 Final Phase I RF/RI Report	12 Jul 94	06 Apr 04*	Overdue
OU 9 Draft Phase I RF/RI Report	11 Apr 94	31 Jan 05*	Overdue
OU 9 Final Phase I RF/RI Report	06 Sep 94**	07 Jul 05**	Overdue
OU 10 Draft Phase I RF/RI Report	25 Aug 94	07 Feb 00*	Overdue
OU 12 Draft Phase I RF/RI Report	20 Apr 94	18 May 98*	Overdue
OU 12 Final Phase I RF/RI Report	15 Sept 94	22 Oct 98*	Overdue
OU 13 Draft Phase I RF/RI Report	08 Aug 94	08 Oct 98*	Overdue
OU 14 Draft Phase I RF/RI Report	20 Dec 94	07 Aug 98*	Overdue

<u>Extended Deliverables</u>	<u>IAG Approved Planned Date</u>	<u>Current Projected Completion Date</u>	<u>Comments</u>
OU 1 Final Corrective Measure Study/Feasibility Study Report	23 Jan 95	To be determined	See footnote 1
OU 1 Final Proposed Plan	27 Apr 95	To be determined	See footnote 1
OU 1 Draft Responsiveness Summary	24 Aug 95	To be determined	See footnote 1

* According to the Tolling Agreement, the OU 2 and the Industrial Area (IA) OUs have until January 31, 1995, to renegotiate new dates. According to the current schedule, the dates that are written in the Current Projected Completion Date column are the anticipated dates.

¹ New milestone dates were accepted by the regulatory agencies and DOE on December 16, 1994, with an opportunity for future schedule extensions to be considered on a monthly basis.

PROBLEMS AND PROGRAMMATIC ISSUES

The analytical laboratory contracted to conduct analysis of the OU 1 radiological samples (gross α/β and isotopics) for the hot spot removal filed bankruptcy. The U-isotopics and gross α/β analysis were completed. The plutonium and americium-isotopics samples were shipped to a new analytical laboratory in December 1994. Unless the analyses are accelerated, schedule delays will be realized in the preparation of the Removal Report.

By the end of the 1994, the OU 4 904 Pad Repack/Restack activities completed repacking 23 containers. This effort continues to implement DOE's compliance strategy formerly agreed upon by DOE and CDPHE. However, the CDPHE reversed its stand on DOE's compliance strategy because of the use of adsorbant material to manage free liquid. The repack effort has continued because the need to take action on longstanding pad compliance issues balances the risks that a second repack effort may ultimately be required.

During vacuum removal operations, additional and unplanned OU 4 salt deposits were discovered in Pond 207C. Because of the nature and the size of the deposits when they were dislodged, vacuum removal is not feasible. Instead, a front-end loader has begun to load the salts into metal storage containers. Although progress is being made, uncertainty remains over whether the pond salts will be completely removed before the January 20, 1995, IAG milestone date.

At a meeting with the regulatory agencies on December 19, 1994, the CDPHE announced its reconsideration of the OU 5 Presumptive Remedy approach to the Original Landfill IHSSs-115/196, and CDPHE requested that the feasibility team provide further justification for use of the Presumptive Remedy.

On December 5, 1994, a request for an IAG Table 6 milestone extension for OU 5 and 6 was submitted. This request is an outcome of the November 1994 meeting with the regulatory agencies on the decoupling of the Environmental Risk Assessment Section and the Draft RFI/RI Report. The regulatory agencies were receptive to a request of an extension of the milestone schedules of the Draft and Final RFI/RI Reports rather than a decoupling of the Environmental Risk Assessment Report and the Draft RFI/RI Report.

A schedule was received from the Sitewide OU 1 and 2 Treatment Facility. The facility's completion date is scheduled for July 27, 1995, and the milestone approved by the regulatory agencies included in the OU 7 Proposed Action Memorandum for collection of seep water is August 16, 1995. The preferred treatment option may not meet the Proposed Action Memorandum implementation schedule. OU 7 is investigating OUs 1 and 2 treatment acceptance criteria, applicable or relevant and appropriate requirements, capacity, and other onsite treatment systems.

The Environmental Protection Agency (EPA) submitted comments on the OU 15 Draft Phase I RFI/RI Report 91 days after the requested date from DOE. The Final Report was submitted to the regulatory agencies on December 19, 1994, without the EPA comments being included. A response to EPA comments was prepared and submitted to the regulatory agencies on December 21, 1994.

NEAR-TERM IAG TABLE SIX MILESTONES

<u>OU #</u>	<u>IAG</u> <u>Milestone Description</u>	<u>Date Scheduled</u> <u>to EPA/CDPHE</u>	<u>Status</u>
8	Submit Draft Phase I RFI/RI Report	14 Feb 94	Tolling Agreement - overdue*
9	Submit Draft Phase I RFI/RI Report	11 Apr 94	Tolling Agreement - overdue*
12	Submit Draft Phase I RFI/RI Report	20 Apr 94	Tolling Agreement - overdue*
8	Submit Final Phase I RFI/RI Report	12 Jul 94	Tolling Agreement - overdue*
13	Submit Draft Phase I RFI/RI Report	08 Aug 94	Tolling Agreement - overdue*
10	Submit Draft Phase I RFI/RI Report	25 Aug 94	Tolling Agreement - overdue*
9	Submit Final Phase I RFI/RI Report	06 Sep 94	Tolling Agreement - overdue*
12	Submit Final Phase I RFI/RI Report	15 Sep 94	Tolling Agreement - overdue*
14	Submit Draft Phase I RFI/RI Report	20 Dec 94	Tolling Agreement - delayed*
13	Submit Final Phase I RFI/RI Report	11 Jan 95	Tolling Agreement - delayed*
4	All Solar Ponds Emptied of Water. and Sludge	20 Jan 95	On schedule but may slip
1	Submit Final CMS/FS Report	23 Jan 95	Additional delays expected
10	Submit Final Phase I RFI/RI Report	30 Jan 95	Tolling Agreement - delayed*
4	Submit Final Phase I Proposed IM/IRA Decision Document	10 Feb 95	On schedule
9	Submit Draft Phase II RFI/RI Work Plan		
7	Release Final Leachate Collection Responsiveness Summary and Interim Measure/Interim Remedial Action	10 Mar 95	Tolling Agreement - delayed*
		22 Mar 95	On schedule
1	Submit Final Proposed Plan	27 Apr 95	Additional delays expected
9	Submit Draft Phase I Proposed IM/IRA Decision Document	01 May 95	Proposed elimination
14	Submit Final Phase I RFI/RI Report	23 May 95	Tolling Agreement - delayed*
10	Submit Draft Phase I Proposed IM/IRA Decision Document	26 May 95	Proposed elimination
2	Submit Draft Phase II RFI/RI Report	30 May 95	On schedule
4	Submit IM/IRA Responsiveness Summary	09 Jun 95	On schedule
2	Submit Corrective Design/Remedial Design Work Plan	15 Jun 95	On schedule
6	Submit Draft Phase I RFI/RI Report	21 Jun 95	Extension requested
10	Submit Draft Phase II RFI/RI Work Plan	27 Jun 95	Tolling Agreement - delayed*
1	Submit Draft Title II Design	05 Jul 95	Extension date to be determined
11	Submit Draft Phases (combined) RFI/RI Report	20 Jul 95	Ahead of schedule
5	Submit Draft RFI/RI Report	21 Jul 95	Extension requested
9	Submit Final Phase II RFI/RI Work Plan	07 Aug 95	Tolling Agreement - delayed*
11	Submit Draft Phase II RFI/RI Work Plan	21 Aug 95	On schedule
1	Draft Responsiveness Summary	24 Aug 95	Additional delays expected
4	Submit Phase I Final IM/IRA Decision Document and Final Responsiveness Summary	29 Aug 95	On schedule
7	Submit Draft Phase I Proposed IM/IRA Decision Document	31 Aug 95	On schedule

<u>OU #</u>	<u>IAG</u> <u>Milestone Description</u>	<u>Date Scheduled</u> <u>to EPA/CDPHE</u>	<u>Status</u>
11	Submit Final Phases (combined) RFI/RI Report	19 Sep 95	On schedule
2	Submit Final Phase II RFI/RI Report	21 Sep 95	On schedule
9	Submit Final Phase I Proposed IM/IRA Decision Document	27 Sep 95	Tolling Agreement - delayed*
1	Submit Final Title II Design	03 Oct 95	Extension date to be determined
11	Submit Draft Phase I Proposed IM/IRA Decision Document	10 Oct 95	Proposed elimination
10	Submit Final Phase I Proposed IM/IRA Decision Document	24 Oct 95	Tolling Agreement - delayed*
3	Submit Draft Phase I RFI/RI Report	30 Oct 95	On schedule
10	Submit Final Phase II RFI/RI Work Plan	21 Nov 95	Tolling Agreement- delayed*
1	Submit Final Responsiveness Summary	23 Nov 95	Additional delays expected
1	Submit Draft Corrective Action Decision/ Record of Decision	23 Nov 95	Additional delays expected

- * According to the Tolling Agreement, OU 2 and the IA OUs have until January 5, 1995, to renegotiate new dates.

SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for December 1994. This program implements the Interagency Agreement (IAG) among the U. S. Department of Energy (DOE), the U. S. Environmental Protection Agency (EPA), and the State of Colorado to investigate, assess and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Environmental Technology Site near Golden, Colorado. This agreement was signed on January 22, 1991, and the work is being performed for DOE by EG&G Rocky Flats, Inc.

The Executive Summary of the report contains highlights of significant achievements, milestone information, and any major unresolved issues of the program. Technical progress, schedule status, and milestone status for each Operable Unit (OU), as well as other program activities, are presented in Section 2. As required by Paragraph 210 of the IAG, Section 3 contains the schedules for routine environmental sampling. As required by Paragraph 13 of the IAG, Section 4 contains a list that identifies the subcontractors performing work on the program.

SECTION 2. PROJECT STATUS

2.1 OU 1 - 881 HILLSIDE AREA

The alluvial groundwater at the 881 Hillside Area, located north of Woman Creek in the southeast section of the Rocky Flats Environmental Technology Site, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is approximately two miles from the eastern, outer edge of the site's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSSs) that make up OU 1 were investigated and treated as high-priority sites because of potentially elevated concentrations of organic compounds in the near-surface groundwater and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a French drain that intercepts and contains near-surface groundwater that flows from the OU 1 area. The near-surface water is treated at the 891 treatment facility, designed for this purpose, and is released onsite into the South Interceptor Ditch along Woman Creek. Water collected from this ditch undergoes a secondary analysis prior to release. IRA construction was completed in April 1992. A Resource Conservation and Recovery Act (RCRA) Facilities Investigation (RFI)/Remedial Investigation (RI) Report was completed in November 1993. To determine the final remedial action, the Feasibility Study (FS) continues parallel with the operation of the IRA.

2.1.1 OU 1 ASSESSMENT

Scope of Work Changes This Period None

Technical Approach Changes This Period	None
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IAG Milestone	Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
Accomplishments	Submit Final Phase III RFI/RI Work Plan	31 Oct 90
	Submit Draft Phase III RFI/RI Report	28 Oct 92
	Submit Final Phase III RFI/RI Report	05 Nov 93
	Submit Revised Phase III RFI/RI Report	15 Jun 94
	Submit Draft Corrective Measures Study (CMS)/FS	25 Aug 94
	Submit Draft Remedial Action Plan/Proposed Plan	22 Nov 94

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Final CMS/FS Report	27 Sep 93	23 Jan 95	22 Nov 94*
Submit Final Proposed Plan	04 Jan 94	27 Apr 95	24 Feb 95*
Submit Draft Responsiveness Summary	06 May 94	24 Aug 95	23 Jun 95*
Submit Final Responsiveness Summary	03 Aug 94	23 Nov 95	22 Sep 95*
Submit Draft Corrective Action Decision/ Record of Decision	03 Aug 94	23 Nov 95	22 Sep 95*

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Final Corrective Action Decision/ Record of Decision	01 Nov 94	22 Jan 96	22 Dec 95*
Submit Draft Title II Design	05 Jul 95		21 Nov 96*

* Milestone dates will continue to slip. The regulatory agencies are considering future extensions on a monthly basis. When programmatic issues are resolved and milestone dates are stabilized, a Baseline Change proposal will be submitted to officially change the baseline.

December Work Activity Status

A stop work period was proposed under the provisions of the Interagency Agreement (IAG) Part 24 on October 24, 1994. The stop work is necessary to resolve the procedural programmatic issue of approval of the Final Phase III Resource Conservation and Recovery Act Facilities Investigation/Remedial Investigation (RFI/RI) and to address the Colorado groundwater standards as Applicable or Relevant and Appropriate Requirements. An agreement was made with the regulatory agencies to defer the stop work period to allow the IAG Project Coordinators an opportunity to address RFI/RI approval and closure issues. The regulatory agencies, DOE, and Rocky Flats Environmental Technology Site personnel met this month to discuss and resolve the Draft CMS/FS Report technical issue comments. As a result of these meetings, the regulatory agencies extended the CMS/FS Report and all future milestone dates by 30 days. The 30-day extension request for the OU 1 FS and the milestones was approved on December 16, 1994, extending the FS due date to January 23, 1995. The regulatory agencies stated that based on DOE's willingness to adequately address the regulatory agencies' comments on the CMS/FS Report and to resolve outstanding issues, additional future schedule extensions will be considered on a monthly basis.

Technical Memoranda (TM)

Project

OU 1 - 881 Hillside

TM #10

TM Title

TM Status

Preliminary Remediation Goals

Submitted Final TM to DOE: 03 May 94

When preparation was concluded: 03 May 94

Projected date of submittal to EPA/CDPHE: Submitted

Actual date of submittal: 03 May 94

Date comments were received: EPA 01 June 94, CDPHE
26 Jul 94

TM #11

TM Title

TM Status

Alternative Array

Submitted Draft TM to DOE: 03 May 94

When preparation was concluded: 03 May 94

Projected date of submittal to EPA/CDPHE: Submitted
 Actual date of submittal: 03 May 94
 Date comments were received: EPA 24 May 94, CDPHE 06 Jun 94

Planned Work for January

- **Final Revised Remedial Investigation (RI)/Draft Corrective Measures Study/Feasibility Study (CMS/FS)** - The technical issue comments that EPA and CDPHE made on the Final Revised RFI/RI Report and the CMS/FS Report will continue to be resolved.

Problems

None

Open Items

None

2.1.2 OU 1 REMEDIATION

Scope of Work

None

Changes This Period

Technical Approach

None

Changes This Period

**IAG Milestone
Accomplishments**

Submit Draft Proposed Interim Measure (IM)/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91
Complete IM/IRA Construction (891 Treatment Building)	02 Mar 92
Complete IM/IRA Construction (French drain)	13 Apr 92

**Future IAG Milestones
Through FY 95**

None

December Work Activity Status

Interim Measure/Interim Remedial Action (IM/IRA) Treatment Facility - Recovery of the collection well water into a portable storage tank continues.

- Approximately 200 gallons of ground well purge water was accepted this month.
- 2,500 gallons of water from the main decontamination facility was accepted this month.

- A preliminary design for isolating the collection well water for treatment in the Building 891 Water Treatment Plant was received by DOE on December 16, 1994. This design configuration will allow the segregation and the characterization of the footing drain, the French drain, and the collection well.

Treated groundwater this period:	14,780 gallons
Total treated to date: (through 12/20/94)	2,681,578 gallons

Planned Work for January

- **Interim Measure/Interim Remedial Action (IM/IRA) Treatment Facility - Normal Operations**
- The development of alternate methods of transporting collection well water to the Building 891 Water Treatment Facility will continue.

Problems

The analytical laboratory contracted to conduct analysis of the radiological samples (gross α/β and isotopics) for the hot spot removal filed bankruptcy. The U-isotopics and gross α/β analysis were completed. The plutonium and americium-isotopics samples were shipped to a new analytical laboratory in December 1994. Unless the analyses are accelerated, schedule delays will be realized in the preparation of the Removal Report.

Open Items

None

2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

The contamination at the 903 Pad and Mound areas is largely attributed to the storage of waste drums in the 1950s and 1960s that corroded over time and allowed hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent, and these areas may have contaminants that were not removed by the treatment system.

Originally, the Surface Water IM/IRA collected seep and surface water contamination sources and then treated and discharged the effluent to the surface water drainage. Operation of the field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process was evaluated at three locations: the influent to the treatment facility, several points within the facility, and the discharge point. Approval was granted to discontinue collection of two of the three sources because of a small amount of contamination.

A second IM/IRA was established in late 1991. This Subsurface IM/IRA Plan/Environmental Assessment encompasses all of OU 2 and contains a description of the process to evaluate a remediation technology for removal of residual free-phase volatile organic compound contamination at OU 2. The volatile organic compound removal actions involve *in situ* vacuum-enhanced vapor extraction technology. The interim remedial action will provide information to aid in the selection and design of final remedial actions that address subsurface, residual free-phase volatile organic compound contamination at OU 2.

2.2.1 OU 2 ASSESSMENT

Scope of Work None
Changes This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
Accomplishments	Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
	Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
	Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91
	Submit Field Report for Detailed Soil Vapor Survey	15 Dec 93
	Submit Preliminary Draft Phase II RFI/RI Report	16 Dec 93

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase II RFI/RI Report	12 Mar 93	30 May 95	17 Apr 95
Submit Final Phase II RFI/RI Report	09 Aug 93	21 Sep 95	27 Jul 95
Submit Draft CMS/FS Report	04 Nov 93	19 Jul 96	11 Apr 96
Submit Final CMS/FS Report	10 May 94	19 Dec 96	30 Aug 96

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Proposed Plan	10 May 94	10 Jan 97	13 Sep 96
Submit Final Proposed Plan	09 Aug 94	25 Mar 97	26 Nov 96
Submit Draft Responsiveness Summary	13 Dec 94	25 Aug 97	06 May 97
Submit Final Responsiveness Summary	16 Mar 95	05 Dec 97	08 Aug 97
Submit Draft Corrective Action Decision/ Record of Decision	16 Mar 95	05 Dec 97	08 Aug 97
Submit Final Corrective Action Decision/ Record of Decision	15 Jun 95	03 Mar 98	04 Nov 97
Submit Corrective Design/ Remedial Design Work Plan	15 Jun 95		17 Apr 98*

* Completion date to be rescheduled because of the Human Health Risk Assessment stop work order.

December Work Activity Status **Remedial Investigation** - The Draft Final Exposure TM was delivered to the regulatory agencies on December 9, 1994.

The technical evaluation for the OU 2 Trench and Mound Site Characterization was completed on December 6, 1994. Preparation of the Work Plan and the Health and Safety Plan have already begun, and the readiness assessment and field activities are scheduled to begin February 7, 1994.

Feasibility Study - In preparation for release to the regulatory agencies in January 1995, the DOE and Rocky Flats Environmental Technology Site comments are being incorporated into the Revision 1 Draft Final Corrective/Remedial Action Objectives TM.

Technical Memoranda

Project

OU 2 - 903 Pad, Mound, and East Trenches

TM #1

TM Title

Development of Corrective/Remedial Action Objectives
(Draft Submittal in-process)

TM Status

When preparation was concluded: To be determined
Projected date of Draft submittal to EPA/CDPHE: To be determined
(Pending resolution of risk assessment methodology issues)
Actual date of Draft submittal: To be determined
Date comments were received: To be determined

TM #2

TM Title

TM Status

Screening of Alternatives (Draft Submittal in-process)
When preparation was concluded: To be determined
Projected date of Draft submittal to EPA/CDPHE: To be determined
Actual date of Draft submittal: To be determined
Date comments were received: To be determined

TM #4	
TM Title	OU 2 Subsurface IM/IRA Soil Vapor Extraction Pilot Test Site 1 (Draft Submittal)
TM Status	When Draft preparation was concluded: 08 Sep 94 Projected date of Draft submittal to DOE: 30 Jul 94 Actual date of Draft submittal: 24 Oct 94 Date comments were received: 10 Nov 94
TM #5	
TM Title	Exposure Scenarios
TM Status	When preparation was concluded: 15 Jan 93 Projected date of submittal to EPA/CDPHE: 15 Jan 93 Actual date of submittal: 15 Jan 93 Date comments were received: 11 Feb 93 EPA, 12 Mar 93 CDPHE
TM #6	
TM Title	Modeling
TM Status	When preparation was concluded: 15 Jan 93 Projected date of submittal to EPA/CDPHE: 15 Jan 93 Actual date of submittal: 15 Jan 93 Date comments were received: 01 Apr 93 EPA, 31 Mar 93 CDPHE
TM #7	
TM Title	Surficial Soils
TM Status	When preparation was concluded: 07 Jan 93 Projected date of submittal to EPA/CDPHE: 07 Jan 93 Actual date of submittal: 12 Jan 93 Date comments were received: 21 Jan 93 TM Approved
TM #8	
TM Title	Bedrock
TM Status	When preparation was concluded: 15 Mar 93 Projected date of submittal to EPA/CDPHE: 01 Mar 93 Actual date of submittal: 15 Mar 93 Date comments were received: 14 Apr 93 EPA, 14 Apr 93 CDPHE TM Approved
TM #8 Addendum	
TM Title	Contingency Plan for revised Phase II RFI/RI Work Plan (Bedrock)
TM Status	When preparation was concluded: Jun 93 Projected date of submittal to EPA/CDPHE: Jun 93 Actual date of submittal: Jun 93 Date comments were received: FY 93

TM #9
TM Title
TM Status

Chemicals of Concern
When preparation was concluded: 08 Aug 94
Projected date of submittal to EPA/CDPHE: 03 Oct 94
Actual date of Draft submittal: 02 Sep 94
Date comments were received: 05 Oct 94
TM Approved

TM #10
TM Title
TM Status

Toxicity Assessment
When preparation was concluded: 09 Aug 94
Projected date of submittal to EPA/CDPHE: 30 Aug 94
Actual date of Draft submittal: 02 Sep 94
Date comments were received: 05 Oct 94
TM Approved

TM #11
TM Title
TM Status

Exposures Scenario (Draft submittal)
When preparation was concluded: 21 Oct 94
Projected date of submittal of Draft to EPA/CDPHE: 31 Oct 94
Actual date of submittal of Draft: 03 Nov 94
Date comments were received: 17 Nov 94

Planned Work for January

Work will continue on the Risk Assessment, the Treatability Studies, and the FS.

Problems

None

Open Items

None

2.2.2 QU 2 REMEDIATION

**Scope of Work
Changes This Period**

None

**Technical Approach
Changes This Period**

None

**IAG Milestone
Accomplishments**

Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
Submit Draft Responsiveness Summary	13 Dec 90
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
Field Treatability Test System Installation Complete	10 May 91
Begin Field Treatability Testing (Carbon System)	03 May 91
Submit Draft Treatability Test Report (Phase I Granular Activated Carbon)	01 Apr 92
Complete IM/IRA Construction (radionuclides removal system)	24 Apr 92
Begin Field Treatability Testing (radionuclides removal system)	27 Apr 92

Submit Final Treatability Test Report (Phase I Granular Activated Carbon)	02 Jun 92
Submit Subsurface Site I Draft Test Plan	29 Oct 92
Submit Subsurface Site I Final Test Plan	12 Jan 93
Submit Draft Surface Water Field Treatability Report	13 Jul 93
Submit Subsurface Site 2 Draft Test Plan	06 July 94
Submit Final Phase II Treatability Study Report	26 Jan 94
Begin Subsurface IM/IRA Test I	14 Feb 94

**Future IAG Milestones
Through FY 95**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Final Pilot Test Report Site 1	20 Dec 94	11 Jan 95	11 Jan 95
Submit Final Pilot Test Plan Site 2	06 Jul 94*	13 Jan 95	13 Jan 95
Start-up Solar Vapor Extraction Test Site 2	31 May 95*	25 Apr 95	25 Apr 95**
Submit Final Pilot Test Report Site 2	30 Apr 96*	01 Sep 95	03 Sep 95
Submit Draft Pilot Test Plan Site 3	31 Mar 95*	24 Jan 95	24 Jan 95
Submit Final Pilot Test Plan Site 3	30 Jun 95*	12 May 95	12 May 95
Complete Pilot Unit 3 Installation	31 Oct 96*	15 Sep 95	15 Sep 95
Submit Draft Pilot Test Report Site 3	30 Sep 97*	01 Mar 96	01 Mar 96
Submit Final Pilot Test Report Site 3	31 Oct 97*	23 Apr 96	23 Apr 96

* Based on proposed/actual schedule dates and subsurface IM/IRA durations.

** Assumes lease of off-gas treatment system.

**December Work Activity Status Subsurface IM/IRA Operations
Soil Vapor Extraction**

Test Site No. 1 - The Rocky Flats Environmental Technology Site Staff gave a presentation to the regulatory agencies on December 7, 1994, to present the technical justification to end extended operations at Test Site 1. Representatives from the regulatory agencies agreed to end extended operations on December 16, 1994. DOE wants to focus resources on an accelerated action at Individual Hazardous Substance Site (IHSS) 110. The fate of Test Sites 2 and 3 of the Subsurface IM/IRA will be discussed in another presentation to the regulatory agencies to be made in January 1995.

Volatile Organic Compound Removal - The Soil Vapor Extraction Post Pilot (Extended) Operations volatile organic compound removal activities include the following:

Pounds of volatile organic compounds removed this month:	122 pounds
Total pounds of volatile organic compounds removed to date:	1,031 pounds

Test Site No. 2 and 3 - The fate of Test Sites 2 and 3 of the Subsurface IM/IRA will be discussed in another presentation to the regulatory agencies to be made in January 1995.

Surface Water IM/IRA Operations - A contract was awarded to reactivate the 16,000 pounds of spent granular activated carbon from Phase II (non-radioactive) activities. The reactivated carbon will be reusable and is no longer a hazardous waste.

Surface Water Treatment - Surface Water IM/IRA treatment activities included the following.

Treated surface water this month:	6,990 gallons
Total treated to date:	24,799,200 gallons

Planned Work for January

- The IM/IRA will continue operation.

Problems

None

Open Items

None

2.3 OU 3 - OFFSITE AREAS

OU 3 can be divided into two categories based on two main activities. The IAG-directed activities, according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), involve assessment of contamination in offsite areas also referred to as Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay vs. U. S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

Scope of Work None
Changes This Period

Technical Approach None
Changes This Period

IAG Milestone Accomplishments	Submit Draft Past Remedy Report	26 Oct 90
	Submit Draft Historical Information/ Preliminary Health Risk Assessment Report	09 Nov 90
	Submit Final Past Remedy Report	02 Apr 91
	Submit Final Historical Information/ Preliminary Health Risk Assessment Report	16 Apr 91
	Submit Draft Phase I RFI/RI Work Plan	10 Jul 91
	Submit Final Phase I RFI/RI Work Plan	06 Dec 91

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	16 Jul 93	30 Oct 95	30 Oct 95
Submit Final Phase I RFI/RI Report	13 Dec 93	11 Jul 96	11 Jul 96

December Work Activity Status TM #4, *Contaminants of Concern Determination*, was reviewed by the University Consortium, and preliminary results show that the Consortium supports the conclusions within the document.

A response to the regulatory agency comments on TM #2, *Exposure Scenarios*, was completed on December 16, 1994. On December 21, 1994, DOE received the TM #2 addendum for review.

Comments from the regulatory agencies still have not been received for TM #4, *Contaminants of Concern Determination*, TM #5, *Toxicity Assessment*, and the CDPHE Conservative Screen Letter Report. The delays in review time have impacted the project schedule. OU 3 continues to assess schedule impacts caused by the regulatory

agency delays in the review of submitted documents and is working to maintain progress on the schedule.

The Public Service Company made the electrical power source connection for the 86th/Kipling Avenue air monitoring station on December 12, 1994. An initial air sampling equipment electrical operation test was conducted by the subcontractor on December 15, 1994, and a second electrical operation test was performed on December 19, 1994. An air sampling equipment operation demonstration for the United States Fish and Wildlife Service was performed on December 21, 1994. This demonstration was to determine if the operation of two similar air sampling stations at the 100th Avenue site and the proposed 88th Avenue site (to be located near the southwest corner of Standley Lake) will be acceptable to the United States Fish and Wildlife Service. This demonstration will determine if the monitoring station noise level is low enough to permit the operation of the other sites (located near the eagles' nesting area) while the eagles are present.

During the daytime on December 13, 1994, the Public Service Company made an unauthorized site visit to the 100th Avenue air monitoring station located in the vicinity of the Bald Eagle nesting area. The Public Service Company was reportedly preparing an electrical transformer for providing power to the air sampling equipment. This work was intended to be scheduled after dark when the eagles have left the nesting area for their night roost and when there would be a minimal chance of disturbing the eagles. This activity was reported to the United States Fish and Wildlife Service who promptly notified the DOE that the Public Service Company crew needed to leave the area immediately and requested a formal explanation from DOE as to why the site visit occurred during unauthorized daytime hours. DOE received a formal explanation from the Public Service Company.

A meeting was held with DOE and the Rocky Flats Environmental Technology Site personnel on December 7, 1994, to discuss development of a sitewide ecological database. This project is in response to the recent data quality investigation of environmental evaluation data collection activities and documentation associated with the environmental restoration subprojects for OUs at the Rocky Flats Environmental Technology Site. No action items for OU 3 were defined at this meeting.

Meetings were held on December 12 - 15, 1994, with team members of a Los Alamos National Laboratory Data Quality Assessment team to discuss OU 3 data quality objectives.

Technical Memoranda

Project

OU 3 - Offsite Areas

TM #1

TM Title

TM Status

Field Changes to RFI/RI Work Plan

When preparation was concluded: 10 May 93

Projected date of submittal to EPA/CDPHE: 10 May 93

Actual date of submittal: 23 Apr 93

Date comments were received: 05 Jan 94

TM #2

TM Title

TM Status

Exposure Scenarios for the Human Health Risk Assessment

When preparation was concluded: 12 May 93

Projected date of submittal to EPA/CDPHE: 12 May 93

Actual date of submittal: 03 May 93

Date comments were received: 15 Jul 93

TM #3

TM Title

TM Status

Modeling

When preparation was concluded: Jan 95

Projected date of submittal to EPA/CDPHE: 02 Mar 95

Actual date of submittal: To be determined

Date comments were received: To be determined

TM #4

TM Title

TM Status

Contaminants of Concern

When preparation was concluded: Aug 94

Projected date of submittal to EPA/CDPHE: 20 Sep 94

Actual date of submittal: 26 Sep 94

Date comments were received: To be determined

TM #5

TM Title

TM Status

Toxicity

When preparation was concluded: Sep 94

Projected date of submittal to EPA/CDPHE: 10 Nov 94

Actual date of submittal: 11 Oct 94

Date comments were received: To be determined

Planned Work for January

- The TM #2, *Exposure Scenarios*, addendum will be submitted to the regulatory agencies for review and approval.
- Formal comments from the regulatory agencies on TM #4, *Contaminants of Concern Identification Plan*, to start the operation of the 86th Avenue air monitor are expected.

Problems

None

Open Items

None

2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 comprises five solar evaporation ponds: 207A, 207B series (North, Center, South), and 207C, which were constructed for treatment and storage of process water from industrial operations. The process water contained treated acidic wastes, industrial liquid wastes (e.g., metal plating solutions), and low-level radioactive wastes.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and groundwater was suspected. Interceptor trenches were installed in 1971 to collect and recycle contaminated groundwater to the ponds and to minimize natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were upgraded by the current, larger Interceptor Trench System, which returned approximately 4 million gallons of groundwater back into the solar evaporation ponds each year.

Process water has not been pumped into the ponds since 1986, and with the diversion of the Interceptor Trench System water to storage tanks in April 1993, groundwater is no longer returned to the ponds. This placement of water into the ponds had been occurring without meeting Land Disposal Restrictions and Minimum Technology Requirements of RCRA. A new, dedicated Building 910 evaporation-treatment facility became operational in July 1993. This building supplements the site's waste treatment facility in Building 374 to process the water stored in the modular tanks. Because upgrades were installed in Building 374, and since other site waste streams decreased in volume, Interceptor Trench System water is now preferentially treated in Building 374 rather than Building 910.

The Solar Evaporation Ponds Subproject is comprised of four technical areas: (1) disposition of noncertified pondcrete and saltcrete and pond sludge processing as required by the Federal Facilities Compliance Act; (2) water management/treatment by means of the IM/IRA Decision Document signed by EPA, CDPHE, and DOE; (3) the OU 4 assessment and remedial action, per the IAG, which identified the ponds as one of the original 16 OUs to be remediated at the Rocky Flats Environmental Technology Site and superseded the 1988 Ponds-Closure Plan submitted by DOE to the regulators; and (4) pad operations, storage, and disposal activities that are necessary to meet the site's RCRA interim status and permit requirements for storage of pond wastes. The water and pond sludge management is a necessary precursor to OU 4 assessment and remediation, and pad operations are necessary support activities, at least until the noncertified pondcrete is processed and disposed.

Work in these four areas was planned to close the ponds and remediate OU 4. The work was scoped to (1) remove water and sludge from the ponds, (2) provide a treatment facility to replace the ponds as evaporation-treatment and storage units for pond-related contaminated groundwater, (3) remove and dispose of pond wastes in compliance with all applicable regulations such as RCRA, (4) assess the nature and extent of contamination at the ponds, (5) complete a RCRA closure of the impoundments, (6) remediate the ponds (source and soils) as needed, and (7) remediate the groundwater as needed.

2.4.1 OU 4 ASSESSMENT

Scope of Work	None
Changes This Period	

Technical Approach	None
Changes This Period	

IAG Milestone	Submit Draft Phase I RF/RI Work Plan	08 Jun 90
Accomplishments	Submit Final Phase I RF/RI Work Plan	26 Nov 90

**IAG Milestone
Accomplishments**

Submit Draft Phase II RFI/RI Work Plan
Submit Final Phase II RFI/RI Work Plan

27 May 94
02 Sep 94

**Future IAG Milestones
Through FY 95**

None

December Work Activity Status

Phase II RFI - In accordance with the Environmental Restoration 2000 Initiative, progress continues on developing the OU 4 Phase II RFI/RI logic network, cost estimates, and detailed field schedule to accelerate the Phase II RFI program. Also, the development of the OU 4 Phase II RFI portion of the Subproject Baseline Document was initiated.

Applicable personnel associated with the Phase II field program are receiving training. In addition, various pre-field mobilization activities are being conducted, such as radiological instrumentation calibration, equipment and supplies procurement, permits development, subcontracts for waste management, escorting support, and readiness assessment.

Technical Memoranda

Project

OU 4 - Solar Evaporation Ponds

**TM #1
TM Title
TM Status**

Vadose Zone Investigation
Draft submitted to EPA/CDPHE: 16 Nov 92
Comments received: 30 Nov 92
Conditional approval: 30 Nov 92
Projected submittal of Final TM to EPA/CDPHE: 15 Dec 92
Actual submittal date of Final TM: 15 Dec 92
Submittal of TM #1 Vadose Zone Schedule: 19 May 93
EPA/CDPHE final approval of TM #1: 17 Jun 93

**TM #2
TM Title
TM Status**

Modification to Field Activities
Draft submitted to EPA/CDPHE: 18 Mar 93
Comments received: 07 May 93
Projected submittal of Final TM to EPA/CDPHE: 07 Jun 93
Actual submittal date of Final TM: 09 Jun 93
EPA/CDPHE final approval of TM #2: 30 Jun 93

**TM #3
TM Title
TM Status**

Environmental Evaluation
Draft submitted to EPA/CDPHE: 19 Mar 93
Comments received: EPA 21 Apr 93, CDPHE 02 Jun 93
Projected submittal of Final TM to EPA/CDPHE: 30 Apr 93
Actual submittal date of Final TM: 02 Jul 93
EPA/CDPHE final approval of TM #3: 30 Jul 93

TM #4
TM Title
TM Status

Human Health Risk Assessment Exposure Scenarios
Draft submitted to EPA/CDPHE: 19 Mar 93
Comments received: EPA 21 Apr 93, CDPHE 23 Apr 93
Projected submittal of Final TM to EPA/CDPHE: 11 Jun 93
Actual submittal date of Final TM: 11 Jun 93
EPA/CDPHE final approval of TM #4: 25 Jun 93

Planned Work for January

- The field activities for the Phase II RFI/RI program are scheduled to begin.

Problems

None

Open Items

The readiness review nonintrusive activity is late. The current target/completion date is January 3, 1995. The major factor causing this delay is the National Environmental Policy Act process for drilling activities required for the subsurface investigation.

2.4.2 OU 4 REMEDIATION

**Scope of Work
Changes This Period**

None

**Technical Approach
Changes This Period**

None

**IAG Milestone
Accomplishments**

Submit Draft Phase I Proposed IM/IRA Decision Document 27 May 94

**Future IAG Milestones
Through FY 95**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Final Phase I Proposed IM/IRA Decision Document	12 Sep 94	10 Feb 95*	On schedule
All Solar Ponds Emptied of Water and Sludge	new	20 Jan 95	20 Jan 95
Submit IM/IRA Responsiveness Summary	25 Jan 95	09 Jun 95*	On schedule
Submit Final Phase I IM/IRA Decision Document and Final Responsiveness Summary	24 Apr 95	29 Aug 95*	On schedule
Submit IM Title II Design Work Plan	24 Jun 96	18 Dec 95*	On schedule
Begin Phase I IM/IRA Construction	28 Jan 95	28 Oct 96*	On schedule

* Extension approved by the regulatory agencies on November 23, 1994.

December Work Activity Status

Treatability Sludge - The Rocky Flats Environmental Technology Site personnel reviewed the Pondcrete Sampling Plan on December 12, 1994; comments have been incorporated. The final sampling event to collect Pondcrete samples at the 904 Pad was complete on December 20, 1994. The 200 pounds of soft "crete" were subsequently shipped to the subcontractor laboratory on December 21, 1994 along with Investigative Derived Materials. The modeling support that is required has been defined. A modified Statement of Work (SOW) for the Treatability Study effort will be drafted January 3, 1995. Additional, treatability study test requirements will also be incorporated into that SOW modification. The Treatability Study is a critical path element for processing pondcrete.

A sampling procedure to drum "C" Pond sludges is in development. The Task Order for the Conceptual Design will have a proposal for a Technical Evaluation before January 1995, and, subsequently, the final award of the modified tasking will occur subsequently. Similarly, the Treatability Study Task Order required a revision to the Statement of Work. New proposals on the Treatability Study Task Order will be prepared, and a revised task award should arrive concurrently with the sludge samples. The Waste Acceptance Criteria, which eliminated soil as a blending agent, has been issued and incorporated into the subcontract documents for redirection. Once all the proposals have been analyzed, there will be a thorough assessment of the fiscal and schedule changes precipitated by the Waste Acceptance Criteria change.

The final sampling event to collect Pondcrete samples at the 904 Pad was complete on December 20, 1994. The 200 pounds of soft "crete" were shipped to the laboratory in December 1994. The modeling support that is required has been defined. A modified Statement of Work for the Treatability Study effort will be drafted on January 3, 1995. Additional Treatability Study test requirements will also be incorporated into that Statement of Work modification. The Treatability Study is a critical path element for processing pondcrete.

Waste Storage and Disposal

Pad Maintenance - The Integrated Work Control Program package associated with the pad drainage piping was approved. Shop fabrication was completed and field work commenced on December 5, 1994. Installation of the piping on the 750 pad was completed on December 9, 1994. Work on the 904 pad started in December 1994.

Container Procurement - There are 16 large and 96 small containers on hand at the 904 Pad.

The lot inspection for the second lot began December 5, 1994, and was completed on December 8, 1994. Repack/Restack operations commenced on December 14, 1994, and a total of seven containers

were repacked. Pending a detailed layout, estimates of current storage spaces required are in excess of 400 containers.

Interim Remedial Action

Water Management - Water transfer operations began on November 30, 1994, and continued until December 17, 1994, with only a minimal amount of downtime. Over 520,000 gallons were pumped from the temporary modular storage tanks to Building 374. This activity sufficiently lowered tank levels and created safer conditions for the tanks before ice permanently forms. Also, the need for spring pumping is minimized.

The modular tanks have a remaining usable volume of about 741,000 gallons. RCRA inspections and compressor rotations were completed satisfactorily in Building 910. Also, RCRA inspections of the Modular Storage Tanks were completed.

Interim Measure Remediation

IM/IRA Decision Document - At the Joint Working Session with the regulatory agencies, a presentation was made by the Rocky Flats Environmental Technology Site Community Relations and Media Relations Departments concerning activities aimed at stimulating public involvement in the development and approval process for the OU 4 IM/IRA Decision Document. Ideas discussed included preparation of a video presentation which presents issues, solutions, and opinions in an informative and balanced manner, facilitation of workshops designed to provide one-on-one opportunities for members of the public to discuss issues with knowledgeable project staff, development of a Users' Guide to assist in reviewing the Decision Document, and the execution of outreach to local, state, and federal political offices and other local organizations for informative briefings on the proposed action. The Joint Working Group endorsed the plans in all of these areas.

Preconstruction - The Site Stripout activity is still progressing on schedule with the removal of piping that runs from the pond area to Building 910 and materials that can not be recycled. These items are being sent to the sanitary landfill. The excess equipment removal activity began on November 28, 1994. OU 4 received a letter from the Rocky Flats Environmental Technology Site Property Utilization and Disposal area that stated no excess materials will be accepted until formalized guidance from DOE Headquarters (HQ) on appropriate certifications and validations for excess materials are received. The project will not be impacted at this time because some materials to be removed are designated for the sanitary landfill and those materials will be dispositioned first. However, if the moratorium on moving equipment to the Property Utilization and Disposal area continues, this project will be impacted. DOE and EG&G have met to discuss options that are available regarding the moratorium on the Property Utilization and Disposal area receiving materials. These options are still being investigated.

The cargo container relocation activity has received a Davis-Bacon determination. The site preparation and grading portion was determined as covered and the actual relocation of the containers was determined non-covered. A Categorical Exclusion from DOE is pending.

The installation of the vehicle access gate at Portal #3 is still on the unfunded list. Alternative methods to secure the funding for this activity are being investigated.

The final Title II design package was issued on December 1, 1994. This Title II package is scheduled for completion on September 29, 1995.

Interim Measure Sludge - Sludge removal (vacuuming) is proceeding with 211 loads removed since October 1994. The number of work days per week has been increased to accelerate sludge transfer. As of December 19, 1994, approximately 60,000 gallons of sludge/water remain in the 207C Pond. The revised estimated date to have the 207C Pond "empty" is January 20, 1995. This is an increase from previous predictions. A total of 14 days have been lost because of inclement weather and equipment failure.

Planned Work for January

- Sludge removal operations in Pond 207C are planned.
- The IM/IRA Title II Design effort, which encompasses the effects of including minimally treated sludge and pondcrete under the barrier, is planned.
- The removal process near the remaining silo located near Building 788 is planned.
- The site stripout activity is planned.
- The site cleanup in support of the relocation of the cargo containers currently located near Building 964 is planned.
- The shipment of production containers for the 904 Pad restack will continue. The 904 repack will continue.
- The Treatability Studies on minimally treated pond sludge, pondcrete, and the conceptual design will continue.
- The first public meeting that will specifically support the public comment on the Proposed Decision Document is scheduled for January 25, 1995.

Problems

By the end of 1994, the OU 4 904 Pad Repack/Restack activities completed repacking 23 containers. This effort continues to implement DOE's compliance strategy formerly agreed upon by DOE and CDPHE. However, the CDPHE

reversed its stand on DOE's compliance strategy because of the use of adsorbant material to manage free liquid. The repack effort has continued because the need to take action on longstanding pad compliance issues balances the risks that a second repack effort may ultimately be required.

During vacuum removal operations, additional and unplanned OU 4 salt deposits were discovered in Pond 207C. Because of the nature and the size of the deposits when they were dislodged, vacuum removal is not feasible. Instead, a front-end loader has begun to load the salts into metal storage containers. Although progress is being made, uncertainty remains over whether the pond salts will be completely removed before the January 20, 1995, IAG milestone date.

Open Items

Issues that initiated a dispute resolution on July 7, 1994, concerning the OU 4 engineered barrier continue. Although the dispute formally ended on July 27, 1994, full regulatory support was not achieved. EPA and DOE both support the plan that calls for placement of minimally treated sludge and pondcrete under the engineered barrier in lieu of offsite disposal, but CDPHE has opted to reserve comment until after the public comment period on the Phase I IM/IRA Decision Document. An extension was granted in November 1994 for all related Phase I milestones, but regulatory concurrence for planned technical scope is still not known.

There is uncertainty regarding the implementation of the State of Colorado's Corrective Action Management Unit Temporary Unit regulation. The State of Colorado ratified legislation that is more restrictive than the Environmental Protection Agency's, but wording in the law is not expected to interrupt planned remediation activities at OU 4.

A key OU 4 assumption is the use of the Corrective Action Management Unit Temporary Unit for treating certain remediation wastes during Phase I Remediation. DOE plans to use the Corrective Action Management Unit Temporary Unit regulations to promote significant cost savings and schedule acceleration while fully protecting human health and the environment. However, the applicability of the law on OU 4 remediation has been questioned by the State of Colorado, and the State has not communicated whether additional requirements would be imposed. Therefore, this regulatory uncertainty poses increased risk to the Phase I remediation project schedule.

Treatment of sludge and pondcrete requires Tent 12 and the pad area south on the 750 Pad (for pondcrete) and Tent 11 on the 904 Pad (pondcrete). These areas need to be made available by either moving wastes to another location or

preferably shipping offsite all Landfill Disposal Restrictions compliant saltcrete. Neither option is currently funded, although partial funding for saltcrete disposal does exist. A substantial increase in the funding for saltcrete disposal is needed to execute this option.

2.5 OU 5 - WOMAN CREEK

OU 5, the Woman Creek Priority Drainage, comprises assessment and remediation of 11 IHSSs in the Woman Creek drainage: Original Landfill (IHSS 115); Ash Pits (IHSSs 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSSs 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881; and Water Treatment Plant Backwash Pond (IHSS 196). Two additional surface disturbances have been identified: one south of the Ash Pits and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan. IHSS 196 has been assigned to this OU. Possible contamination in this OU was caused by landfill operations, stormwater runoff into holding ponds, and Ash Pit operations. Constituents in OU 5 include depleted uranium, metals, solvents, pesticides, polychlorinated biphenyl, and Volatile Organic Compounds. Media affected include soils, sediments, surface water, groundwater, and air.

**Scope of Work
Changes This Period**

None

**Technical Approach
Changes This Period**

**IAG Milestone
Accomplishments**

Submit Draft Phase I RFI/RI Work Plan
Submit Final Phase I RFI/RI Work Plan

05 Apr 91
30 Aug 91

**Future IAG Milestones
Through FY 95**

None

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	30 Nov 93	21 Jul 95	11 May 95
Submit Final Phase I RFI/RI Report	03 May 94	17 Jan 96	14 Nov 95

December Work Activity Status

On December 5, 1994, a request for an IAG Table 6 Milestone extension for OU 5 and 6 was submitted. This request is a result of the November 21, 1994, meeting with the regulatory agencies. The meeting concluded with the regulatory agencies being amenable to a schedule extension of the Draft and Final RFI/RI Report milestones, rather than decoupling the Environmental Risk Assessment Report from the Draft RFI/RI Report. With the potential of ecological risk becoming the primary risk driver, it is advantageous to submit the Baseline Risk Assessment as a complete document in the Draft RFI/RI Report and the Final RFI/RI Report.

The drilling of the three deep bedrock monitoring wells and drilling of the geotechnical borings at IHSS 115 continues under the Implementation of TM #15, *Addendum to the Field Sampling Plan*. Because of borehole instability, the second of three deep wells was abandoned after several attempts to install a well at this location. The relocated second deep bedrock well was installed. The drilling of the third bedrock monitoring well was initiated and will be completed by January 13, 1995.

The Draft Final TM #11, *Contaminants of Concern*, for the Human Health Risk Assessment is being reviewed by the regulatory agencies. Comments were expected from the regulatory agencies by November 22, 1994. Response to comments were received from CDPHE on December 13, 1994; EPA comments were received on December 15, 1994. Because of additional review time, this activity is behind on the critical path schedule for the RFI/RI Report, which is an IAG deliverable.

On December 14, 1994, an OU 5 groundwater modeling meeting was held with representatives from the regulatory agencies and DOE. The purpose of the meeting was 1) to review the status of the modeling effort, 2) discuss the groundwater flow modeling process and results, and 3) facilitate a smooth, timely review of the RFI/RI Report by the regulatory agencies. Groundwater modeling activities for the Human Health Risk Assessment continue with particle tracking and preparation of a summary of flow modeling.

Surface water modeling activities for the Human Health Risk Assessment continue with sediment transport modeling. The sediment transport module for the surface water modeling project software was further edited to include missing input parameters needed to simulate the production and removal of sediment from a pervious land segment. An additional temporary meteorological time-series for percentage of cloud cover required for operation of the module was developed by the modification of existing solar radiation time-series.

Air dispersion modeling activities for the Human Health Risk Assessment continue.

The High Purity Germanium survey work has made significant progress despite delays because of the weather. Snow storms have impacted work since the system does not work with snow cover or high moisture content in the soil. This activity is behind on the critical path schedule. Efforts continue to bring this project back on schedule. For example, the results will be presented daily in order to facilitate the next phase (Field Instrument Detection Low Energy Radiation surveys will be conducted as required) sooner than the schedule logic indicates.

The CDPHE is reconsidering the Presumptive Remedy approach to the Original Landfill (IHSS 115/196) and has requested that the Feasibility Team provide further justification for use of the Presumptive Remedy.

Technical Memoranda

<u>Project</u>	<u>OU 5 - Woman Creek Priority Drainage Remedial Investigation</u>
TM #1	
TM Title	Surface Water and Sediments
TM Status	When preparation was concluded: 30 Nov 92 Projected date of submittal to EPA/CDPHE: 30 Nov 92 Actual date of submittal: 13 Oct 92
TM #2	
TM Title	Surface Geophysics
TM Status	When preparation was concluded: 30 Nov 92 Actual date of submittal: 13 Oct 92
TM #3	
TM Title	Soil Sampling at IHSS 115.
TM Status	When preparation was concluded: 07 May 93 Actual date of submittal: 26 Jan 93
TM #4	
TM Title	Soil Sampling at IHSS 133
TM Status	When preparation was concluded: 07 Jun 93 Actual date of submittal: 12 Apr 93
TM #5	
TM Title	Soil Gas Sampling at IHSS 115
TM Status	When preparation was concluded: 07 May 93 Actual date of submittal: 25 Mar 93
TM #6	
TM Title	Cone Penetrometer at IHSS 115
TM Status	When preparation was concluded: 14 Apr 93 Actual date of submittal: 25 Mar 93
TM #7	
TM Title	Soil Borings at IHSS 133
TM Status	When preparation was concluded: 07 May 93 Actual date of submittal: 19 Feb 93
TM #8	
TM Title	Monitoring Wells at IHSS 115
TM Status	TM #8 has been canceled and has been replaced by a letter outlining the justification for the location of the wells in IHSS 115.
TM #9	
TM Title	Monitoring Wells at IHSS 133, Ash Pits, Incinerator, and Concrete Wash Pad
TM Status	Actual date of the Draft TM submittal to EPA/CDPHE: 06 May 93 Actual date of the Final TM submittal to EPA/CDPHE: 28 Jun 93

TM #10
TM Title
TM Status

Soil Borings at IHSS 209
When preparation was concluded: 06 Mar 93
Actual date of the Final TM submittal to EPA/CDPHE: 06 Mar 93

TM #11
TM Title
TM Status

Contaminants of Concern
Actual date of the Draft Final TM submitted to EPA/CDPHE:
08 Nov 94
Submittal of TM #11 was delayed because of the Human Health Risk
Assessment stop work order.

TM #12
TM Title
TM Status

Exposure Scenarios
When the Final TM is estimated to be concluded: 23 Jan 95
Submittal of TM #12 was delayed because of the Human Health Risk
Assessment stop work order.

TM #13
TM Title
TM Status

Modeling
Actual date of submittal of the Draft Final TM to EPA/ CDPHE: Dec 92
Actual date of submittal of the Final to EPA/CDPHE: 29 Nov 94

TM #14
TM Title
TM Status

Toxicity Assessment
Actual date of submittal of the Final to EPA/ CDPHE: 14 Nov 94
Per written guidance from the regulatory agencies, a table
summarizing specific Preliminary Contaminants of Concern was
submitted in lieu of this TM.

TM #15
TM Title
TM Status

Addendum to the Field Sampling Plan
Actual date of the Final TM submittal to EPA/CDPHE: 31 Aug 94

Planned Work for January

- The field work activities will continue.
- The Human Health Risk Assessment work including surface water, air, and groundwater modeling activities will continue.
- The FS will continue with an emphasis on the Presumptive Remedy approach to the Original Landfill.
- The Environmental Evaluation of the Woman Creek Priority Drainage will continue.

Problems

The Ecological Risk Assessment is behind schedule. If the milestone extension request is not approved, this schedule will be difficult to bring back on schedule.

Open Items

Approval of extensions for the IAG Table 6 milestones.

Approval of TM #14, *Toxicity Assessment*, is pending.

2.6 OU 6 - WALNUT CREEK

OU 6, the Walnut Creek Priority Drainage, comprises assessment and remediation of 19 IHSSs: the A-series Detention Ponds, Ponds A-1 through A-4 (IHSSs 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North Spray Field (IHSS 167.1); the East Area Spray Field (IHSS 216.1), the Trenches A, B and C (IHSSs 166.1, 166.2 and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165); the Old Outfall Area (IHSS 143); and the Soil Dump Area (IHSS 156.2).

Completion of field operations resulted in obtaining the following samples from the IHSSs in OU 6: stream sediment, pond sediment, surface soil, subsurface soil, and surface and groundwater.

Scope of Work None
Changes This Period

Technical Approach
Changes This Period None

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
Accomplishments	Submit Final Phase I RFI/RI Work Plan	16 Sep 91

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	04 Aug 93	21 Jun 95	19 Apr 95
Submit Final Phase I RFI/RI Report	07 Jan 94	21 Dec 95	20 Nov 95

December Work Activity Status Work continues on the Final TM #2, *Exposure Scenarios*. Since the Draft TM #2 was submitted in June 1993, some of the technical issues in the TM #2 have changed. These changes are being incorporated.

Final revisions to TM #3, *Model Description*, continue.

An approval letter for TM #4, *Chemicals of Concern*, and TM #5, *Toxicity Assessment*, was received on December 29, 1994.

Surface water and air modeling activities were completed. Risk assessment continues on schedule.

The revised methodology for the completion of the environmental evaluations for Walnut Creek and Woman Creek will group OU Environmental Evaluations into watersheds. Schedules were completed that will guide this methodology. A meeting was held in November 1994 with the regulatory agencies to present the Ecological Risk Assessment schedules. The regulatory agencies gave verbal approval for an IAG milestone schedule extension request instead of decoupling the Ecological Risk Assessment from

the Draft Phase I RFI/RI Report. A schedule extension request was made for approximately three months on the Draft Phase I RFI/RI Report for OU 6 and for approximately a two-month extension for the Final Phase I RFI/RI Report for OU 6. A response from the regulatory agencies is pending.

The Sitewide Conceptual Model TM is one of three TMs that will define the Ecological Risk Assessment Methodology for the Rocky Flats Environmental Technical Site. DOE received the preliminary Draft Sitewide Conceptual Model on December 5, 1994.

Sprinkler Pipe Cleanup And B-3 Pond Cleanup

The 788 permacon is experiencing schedule slippage, because of other jobs using the permacon, which will delay the start of the pipe cut-up project until late January 1995. Other jobs with higher priority have required so much radiological control technician support that the Spray Field job has been effectively shut down and has fallen behind schedule. The situation of the radiological control technician shortage is being addressed.

Decontamination Of Steel From 964 Yard

If possible, steel equipment and materials found to be contaminated during the 964 Yard cleanup are to be decontaminated. At this time, a variety of decontamination methods are being evaluated, and the best solution appears to be a combination of two or three of these methods. This project is currently not funded as the method(s) of decontamination have not yet been determined.

Technical Memoranda

Project

OU 6 - Walnut Creek

TM #1

TM Title

TM Status

Work Plan Modifications

Approved by EPA: 08 Jan 93

TM #2

TM Title

TM Status

Exposure Scenarios

When preparation of the Draft TM was concluded: 07 July 93

Date the Draft TM was submitted to EPA/CDPHE: 07 Jul 93

Projected date the Final TM will be submitted to EPA/CDPHE: To be determined

TM #3

TM Title

TM Status

Modeling Description

When preparation of draft was concluded: 10 Nov 93

Date the Draft TM was submitted to EPA/CDPHE: 10 Nov 93

Date EPA/CDPHE comments were received: 23 Dec 93

Date the Final TM was submitted to EPA/CDPHE: 14 Jan 94

Projected date the Second Final TM will be submitted to EPA/CDPHE: To be determined

TM #4
TM Title
TM Status

Contaminants of Concern
Date the Draft TM was submitted to EPA/CDPHE: 23 Aug 94
Date EPA/CDPHE comments were received: 03 Oct 94
Approved on 28 Dec 94

TM #5
TM Title
TM Status

Toxicity Factors
Date the Draft TM was submitted to EPA/CDPHE: 23 Aug 94
Date EPA/CDPHE comments were received: To be determined
Approved on 28 Dec 94

Planned Work for January

- Efforts will continue on the preparation and submittal process for the TM #2, *Exposure Assessment*.
- The preparation of the Assessment Endpoint TM, *Conceptual Design TM*, and the Contaminant of Concerns Screen Methodology TM for the Environmental Evaluation will continue.
- Efforts will continue on the FS TM #1.

Problems

The Ecological Risk Assessment is behind schedule. If the milestone extension request is not approved, this schedule will be difficult to bring back on schedule.

Open Items

Approval of extensions for the IAG Table 6 milestones.

2.7 OU 7 - PRESENT LANDFILL

OU 7, the Present Landfill, is located north of the site complex on the western edge of an unnamed tributary of North Walnut Creek and comprises four IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill and soils beneath the landfill potentially contaminated with leachate. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area, which is a section of the Present Landfill located in the southwest corner, was used between 1986 and 1987 as a temporary storage area for hazardous waste. In order to maintain the landfill pond at an acceptable volume to prevent discharge, spray evaporation of landfill pond water was applied to the north and south of the landfill pond comprising IHSSs 167.2 and 167.3, respectively. The practice of spray evaporation was discontinued in 1993.

The Present Landfill began operation in August 1968 and was originally constructed to provide for disposal of the Rocky Flats Environmental Technology Site nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill; consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

Scope of Work

Changes This Period

None

Technical Approach

Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	28 Aug 91
Submit Draft Phase I RFI/RI Report	23 May 94
Submit Draft Phase II RFI/RI Work Plan	23 May 94
Submit Final Phase I RFI/RI Report	08 Sep 94
Submit Final Phase II RFI/RI Work Plan	08 Sep 94
Submit Preliminary Draft Proposed Action Memorandum (leachate) to CDPHE/EPA	13 Oct 94
Submit Final Draft Proposed Action Memorandum (leachate) for Public Comment	13 Oct 94
Submit Final Responsiveness Summary and Proposed Action Memorandum to CDPHE/EPA	30 Nov 94

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
<u>Landfill Closure IM/IRA</u>			
Submit Draft Phase I Proposed IM/IRA Decision Document	01 Nov 94	31 Aug 95	03 May 95

Submit Final Phase I Proposed IM/IRA

Decision Document

Submit IM/IRA Responsiveness Summary 14 Aug 95

05 Jan 96

04 Oct 95

03 Jul 95

04 Oct 95

Landfill Leachate Collection Proposed Action Memorandum

Release Final Responsiveness Summary

and Proposed Action Memorandum*

22 Mar 95

22 Mar 95

- * This milestone is referred to as the Release Final Leachate Collection Responsiveness Summary and IM/IRA in the Table 6 milestone list.

December Work Activity Status

The Proposed Action Memorandum received final approval from the CDPHE on December 14, 1994, which met the IAG milestone date that was established for this interim action.

The wetlands assessment is undergoing applicable or relevant and appropriate requirements review and was transferred to DOE.

The Title II Design and specifications for the Seep Collection System were completed on December 21, 1994.

A schedule was received from the Sitewide OU 1 and 2 Treatment Facility. The facility's completion date is scheduled for July 27, 1995. The milestone approved by the regulatory agencies included in the Proposed Action Memorandum for collection of seep water is August 16, 1995. The preferred treatment option may not meet the Proposed Action Memorandum implementation schedule. OU 7 is investigating OUs 1 and 2 treatment acceptance criteria, applicable or relevant and appropriate requirements, capacity, and other onsite treatment systems.

Groundwater modeling activities for the Human Health Risk Assessment continue with particle tracking and preparation of a summary of flow modeling. Solute-transport modeling was initiated. Particle tracking for some representative particles from IHSSs and other selected locations was completed.

Technical Memoranda

Project

OU 7 - Present Landfill

TM

TM Title

TM Status

Revised Work Plan

Submitted the Draft TM to EPA/CDPHE for review: 23 May 94

Comments received: 01 July 94

Submitted the Final TM transmitted to EPA/CDPHE: 09 Sep 94

Approved by the regulatory agencies: 30 Sep 94

Planned Work for January

- The option analysis and conceptual design of the landfill closure will continue.

- Investigation of the OUs 1 and 2 treatment acceptance criteria, applicable or relevant and appropriate requirements, capacity, and other onsite treatment systems will continue.

Problems

The completion date of the Sitewide OU 1 and 2 Treatment Facility is scheduled for July 27, 1995. The approved Proposed Action Memorandum milestone for collection of seep water is August 16, 1995. The preferred treatment option may not meet the Proposed Action Memorandum implementation schedule. OU 7 is investigating OUs 1 and 2 treatment acceptance criteria, applicable or relevant and appropriate requirements, capacity, and other onsite treatment systems.

Open Items

None

2.1A INDUSTRIAL AREA (IA) OPERABLE UNITS (8, 9, 10, 12, 13, and 14)

The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these OUs are being investigated collectively because of similarities in the field work for these OUs (e. g., surficial soil sampling, *in situ* radiation surveys, and soil gas sampling). Combining this work will result in improved oversight, coordination, and reduced costs.

Scope of Work

Changes This Period

None

Technical Approach

Changes This Period

None

IA Milestone

Accomplishments

This information is listed in the IA OUs.

Future IAG Milestones

Through FY 95

Deliver reorganization proposal to regulatory agencies

04 Nov 94

December Work Activity Status

Corrections and responses to comments on the Draft IA Surface Water and Sediment Field Sampling Plan TM are being incorporated. A meeting was held among the regulatory agencies, DOE, and the Rocky Flats Environmental Technology Site personnel to discuss the Surface Water and Sediment Field Sampling Plan. A number of concerns were aired that included a proposal by maintenance personnel at the site to clean out the sediment from ditches on site to prevent flood overflow situations in the spring. It was determined that if the Surface Water and Sediment Sampling Plan could be approved by the regulatory agencies before the maintenance personnel start their hazardous waste determinations, the clean out effort should not affect the sampling effort. Maintenance will begin the clean out effort towards the end of January 1995. A more accurate date is being determined, so that this can be conveyed to the regulatory agencies. Concerns regarding the integration of the Surface Water and Sediment Field Sampling Plan, the IA IM/IRA, the OU 13 Sediment Sampling, and the OU 8 footing drains were brought up by EPA. A strong integration among these documents exists, and these concerns were answered. Incorporation of a document or integration plan should be included in these documents to better communicate the interaction between these efforts. The document is planned to be resubmitted as a final plan at the beginning of January 1995, in order to not effect the maintenance operations that need to take place in January and February 1995.

An independent cost estimating audit was held on December 21, 1994, to look at life cycle costs for each project and to validate the basis of estimates.

Industrial Area Operable Units Quality Assurance - A review of the Statement of Work (Intrusive Investigation Phase I RFI/RI Work Plan for OUs 8, 9, 10, 12, 13, 14) was conducted.

A surveillance of Ground Penetrating Radar activities for OU 8 was conducted.

Activities will be conducted to respond to the Environmental Quality Support Environmental Management Inspection Report and Site Commitments Management Program Identification Form for OUs 8 and 10.

Technical Memoranda

The Draft IA Surface Water and Sediment Field Sampling Plan was submitted to the regulatory agencies on October 26, 1994.

Planned Work for January

- The Final Surface Water and Sediment Field Sampling Plan TM will be submitted.

Problems

None

Open Items

Responses to the regulatory agency comments on the Draft IA Surface Water and Sediment Field Sampling Plan TM are being prepared with the target for completing the final document in January 1995.

2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of the Rocky Flats Environmental Technology Site. Contamination sources within the various IHSSs include above-ground and underground tanks, equipment washing areas, and releases inside buildings that potentially affect areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and, in some cases, through precipitation runoff. The chemical composition of the contaminants varies widely between the IHSSs, and ranges from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

OU 8 is within the IA at the Rocky Flats Environmental Technology Site and is being managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these OUs are being investigated collectively because of similarities in the field work for these OUs (e. g., surficial soil sampling, *in situ* radiation surveys, and soil gas sampling). The combination of this work has resulted in improved oversight, coordination, and reduced costs.

Scope of Work None
Changes This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	01 May 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	01 Dec 92

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	14 Feb 94	Tolling Agreement	04 Nov 97
Submit Final Phase I RFI/RI Report	12 Jul 94	Tolling Agreement	10 Feb 98

December Work Activity Status

The Draft Final TM #1, *Investigation of Foundation Drains and Other Data Compilation Addendum to the OU 8 Work Plan*, is currently undergoing agency review. Regulatory comments were due December 8, 1994, but no comments have been received to date. Following this review, if the regulatory agencies still have significant comments or concerns regarding the TM, a meeting will be proposed to address those comments and ensure that the final TM is approved.

Field work for the OU 8 RFI/RI Stage 2 investigation began in October 1994 and is ongoing.

The following approximate percentage of samples were collected as part of the Stage 2 nonintrusive investigation: Surficial Soil, 100 percent; Vertical Profile, 85 percent; Asphalt/Concrete, 100 percent; Soil Gas, 75 percent; Sediment, 100 percent; and Sodium Iodide Radiation Measurements, 15 percent. Overall, sampling activities are slightly ahead of schedule.

Industrial Area Interim Measure/Interim Remedial Action Plan - Approval of the IM/IRA Decision Document was received from the EPA on November 28, 1994. The CDPHE approved the Final IM/IRA Decision Document the week of December 19, 1994. The development of the Implementation Plan for the proposed actions is continuing, and the procurement process for equipment and subcontractor support has begun.

Technical Memoranda

Project

OU 8 - 700 Area

TM #1

TM Title

Investigation of Foundation Drains and Other Data Compilation
Addendum to the OU 8 Work Plan, Draft Final

TM Status

Projected date of submittal to EPA/CDPHE: 01 Dec 94

Actual date of submittal: 23 Nov 94

Date when EPA/CDPHE comments received: Pending

Planned Work for January

- The Stage 2 field activities will continue.
- The regulatory agency comments on the Draft Final TM #1 will be received and addressed.
- Work will begin on the Final TM #1 scheduled for submittal in February 1995.

Problems

Comments from the regulatory agencies on the Draft Final TM #1 have not been received.

Open Items

Comments from the regulatory agencies on the Draft Final TM #1 have not been received.

2.9 OU 9 - ORIGINAL PROCESS WASTE LINES

This project involves the investigation and remediation of a series of tanks and associated process waste lines. The original process waste lines consisted of 35,000 feet of buried pipeline that transferred process wastes from production buildings to onsite treatment plants. A system of 60 designated pipe sections, 40 single and multiple storage tank sites, and three other areas of suspected process waste leakage is included in OU 9. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced between 1975 and 1984 by the new process waste system. Some tanks and lines from the original system were incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in the system, including medical decontamination fluids, miscellaneous laboratory liquids, and laundry effluent. The RFI/RI Phase I Work Plan includes inspection and sampling of the tanks and pipelines that are accessible and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring where known or suspected releases occurred near pipe joints and valves, at approximately 100- to 200-foot intervals along the pipelines and by installing borings around the outdoor tanks. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the Phase I RFI/RI will determine the need for interim and/or final remediation action.

OU 9 is within the IA at the Rocky Flats Environmental Technology Site and is being managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these OUs are being investigated collectively because of similarities in the field work for these OUs (e. g., surficial soil sampling, *in situ* radiation surveys, and soil gas sampling). The combination of the work has resulted in improved oversight, coordination, and reduced costs.

Scope of Work None
Changes This Period

Technical Approach None
Changes This Period

IAG Milestone Accomplishments	Submit Draft Phase I RF/RI Work Plan	08 Jun 90
	Submit Final Phase I RF/RI Work Plan	26 Nov 91

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	11 Apr 94	Tolling Agreement	04 Jan 01
Submit Final Phase I RFI/RI Report	06 Sep 94	Tolling Agreement	16 Sep 03
Submit Draft Phase II RFI/RI Work Plan	10 Mar 95		23 Jul 04
Submit Draft Phase I Proposed IM/IRA Decision Document	01 May 95		31 Oct 03
Submit Final Phase II RFI/RI Work Plan	07 Aug 95		01 Apr 05
Submit Final Phase I Proposed IM/IRA Decision Document	27 Sep 95		12 Jul 04

December Work Activity Status

The Draft Modification to the IA Health and Safety Plan to add the requirement for the OU 9 Outside Tank Investigation was finalized, and the document is being prepared for release as a modification to a controlled document.

The operating procedure for tank and pipeline investigation, FO.28, is still under preparation. In order to meet the actual requirements of the tank investigation, modifications are needed to the procedure.

DOE approved a request that the tank investigation work that is not in contention with the regulatory agencies proceed. As part of the OU 9 investigation of Outside Tanks, a letter task order was issued to the subcontractor to initiate the field preparation activities. This includes the preparation of the addendum to TM #1, *Volume 1, Part A*, to address Tanks T-8 and T-9. Work on this activity was initiated. This will also allow additional field preparation activities to commence.

Work continued on closure plans for tanks and lines in Building 865. This has an impact on lines that could be associated with OU 9. Since closure of the OU 9 tanks is now part of the IAG, there could be a closure problem in any of the buildings. Prior to initiating cleanup activities, the Economic Conversion Project may need final closure. Information was obtained that indicates that Tanks in T-7 in Building 528 will be used to store low-level radionuclides. These tanks will be investigated as part of the Stage I Outside Tank Field Investigation. The regulatory agencies were requested to address OU 9 IAG issues in writing so that it is clear that RCRA closure can be performed on the tanks, and the tanks can continue to be used to accept low-level waste.

Discussions continued on tanks in and around Building 889. This includes sumps in the building as well as tanks outside of the building (T-40). The T-40 tanks are targeted for removal as an early action. If DOE concurs, the Proposed Action Memorandum will include all of these tanks as well as some of the underground pipelines used as waste lines.

DOE is preparing a letter to CDPHE that addresses the investigation of Tanks T-8, T-9, T-24 and T-32. T-24 and T-32 will continue to be used during the Stage I investigation as 90-day storage tanks.

Incorporation of DOE comments on the Draft TM #1, *Volume II, Part A - the Field Sampling Plan for Outside Pipelines*, was completed. The Draft Final TM is currently under review by the regulatory agencies.

The modification to Draft TM #1, *Volume I, Part A - the Field Sampling Plan for Outside Tanks*, to address Tank T-11 and T-30 was completed and transmitted to the regulatory agencies. Once comments are returned, a Final Draft will be prepared by incorporating the resolution of those comments.

New requirements for training have delayed the training schedule for the OU 9 Outside Tank Investigation.

Technical Memoranda

Project

OU 9 - Original Process Waste Lines

TM #1

TM Title

Field Sampling Plan - Original Process Waste Lines - Volume I, Part A, Outside Tanks

TM Status

When preparation was concluded: Jan 94

Projected date of submittal to EPA/CDPHE: Mar 94

Actual date of submittal: 15 Mar 94

Date EPA/CDPHE comments received: 11 Apr 94

TM #1

TM Title

Field Sampling Plan - Volume II, Part A, Outside Pipelines

TM Status

When preparation was concluded: Aug 94

Projected date of submittal to EPA/CDPHE: Nov 94

Actual date of submittal: Nov 94

Date EPA/CDPHE comments received: To be determined

Planned Work for January

- The following activities for the Stage I Outside Tank Investigation will continue: Train field personnel, subcontract field work, continue with field work preparations that include permitting, finalize the Health and Safety Plan, and update the Project Management Plan.
- Initiate the following OU 9 Outside Tank Investigation field activities: High Purity Germanium survey, sodium iodide survey, equipment procurement, and tank inspection and sampling.
- The final controlled OU 9 modification to the IA Health and Safety Plan will be released.
- The regulatory agency comments on TM #1, *Volume II, The Field Sampling Plan for Pipelines*, will be incorporated.
- The Operating Procedure, FO.28, for tank and pipeline investigation will be finalized.

Problems

TM #1, *Field Sampling Plan - Original Process Waste Lines - Volume 1, Part A, Outside Tanks*, has not been approved by the regulatory agencies.

Comments from the regulatory agencies have not been received on the addendum to the OU 9 Field Sampling Plan for Outside Tanks for Tanks T-11 and T-30. Also, comments are due from the regulatory agencies on the OU 9 Field Sampling Plan for Pipelines.

Open Items

TM #1, *Field Sampling Plan - Original Process Waste Lines - Volume 1, Part A, Outside Tanks*, has not been approved by the regulatory agencies.

2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is composed of 15 IHSSs scattered throughout the Rocky Flats Environmental Technology Site. Six of the IHSSs are located in the Protected Area, two are located in the buffer zone near the present landfill, and the remaining IHSSs are located near various buildings throughout the Rocky Flats Environmental Technology Site. The types of wastes and contaminants identified at these sites include pondcrete/saltcrete storage, diesel and fuel spills, and heavy metal contamination. A Draft and Final TM will be developed that will summarize the nonintrusive portion of the OU 10 field work. Other IHSS-specific intrusive activities are scheduled for FY 94.

OU 10 is currently being managed collectively with the other IA OUs (8, 9, 12, 13, and 14). All of these OUs are being investigated collectively because of the similarities in the field work for these OUs (e. g., surficial soil sampling, *in situ* radiation surveys, and soil gas sampling). The combination of this work has resulted in improved oversight, coordination, and reduced costs.

Scope of Work None
Changes This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	27 Nov 91
Accomplishments	Submit Final Phase I RFI/RI Work Plan	01 May 92

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	25 Aug 94	Tolling Agreement	09 Nov 20
Submit Final Phase I RFI/RI Report	30 Jan 95	Tolling Agreement	27 Jul 21
Submit Draft Phase I Proposed IM/IRA Decision Document	26 May 95		26 Feb 18
Submit Draft Phase II RFI/RI Work Plan	27 Jun 95		25 May 17
Submit Final Phase II RFI/RI Work Plan	21 Nov 95	Tolling Agreement	

December Work Activity Status DOE received a redlined version of the Preliminary Draft TM #1, which includes all relevant comments on the document, on December-1, 1994. Work continued towards completion of the Draft TM #1 for OU 10. Because of the delays in receiving all validated chemical analyses, problems with maps and figures, and significant comments on the Preliminary Draft TM #1, the schedule was slipped for delivery of the Draft TM #1 from December 6, 1994, to January 16, 1994. This schedule delay of approximately six weeks will allow for the development of a superior quality document and should not adversely affect the implementation of the intrusive activities planned for FY 95 for OU 10.

Comment responses on the OU 10 Proposed Action Memorandum, which were received during the Public Comment Period, were

delivered to the regulatory agencies in December 1994. CDPHE fundamentally disagrees with the Rocky Flats Environmental Technology Site's approach for removing the 443 tanks and management of the contaminated soils that are expected to be encountered. Work will not proceed on this project until all issues regarding waste management have been resolved and the regulatory agencies endorse the revised Proposed Action Memorandum.

Technical Memoranda

A revised schedule was developed for preparation and delivery of the Draft Final and Final OU 10 Phase I Nonintrusive TM. The new dates for delivery of the Draft Final and Final TMs are December 6, 1994, and February 10, 1995, respectively.

Planned Work for January

- The Draft Nonintrusive TM #1 will be delivered to the regulatory agencies on January 16, 1994.
- The validation of the remainder of the sample analytical data will be completed.
- The sodium iodide surveys will be completed.

Problems

Current information indicates that the Rocky Flats Compliance Agreement will not be negotiated before the expiration of the Tolling Agreement on January 31, 1995. It is conceivable that DOE will then begin accruing stipulated fines and penalties associated with the remaining Table 6 IAG milestones.

Open Items

None

2.11 OU 11 - WEST SPRAY FIELD

The West Spray Field is located within the Rocky Flats Environmental Technology Site buffer zone immediately west of the 130 Trailer complex. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from Solar Evaporation Ponds 207B North and Center (contaminated groundwater in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105 acres, 38 of which received direct application of solar pond water. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and groundwater.

Scope of Work None
Changes This Period

Technical Approach None
Changes this Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Accomplishments	Submit Final Phase I RFI/RI Work Plan	02 Jan 92

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phases (combined) RFI/RI Report	20 Sep 94	20 Jul 95*	19 May 95
Submit Final Phases (combined) RFI/RI Report	22 Feb 95	19 Sep 95*	21 Jul 95
Submit Draft Phase II RFI/RI Work Plan	21 Aug 95	Deleted	Deleted

* Revised according to the Process Improvement Proposal.

December Work Activity Status On December 16, 1994, the analytical laboratories delivered all analytical data from the summer of 1994's field investigation.

Technical Memoranda

Project OU 11 - West Spray Field

TM
TM Title Revised Field Sampling Plan and Data Quality Objectives
TM Status Submitted to EPA/CDPHE: 31 Mar 94
TM approved.

TM #1
TM Title Exposure Scenarios
TM Status When preparation was concluded: Mar 94 (late)
Projected date of submittal to EPA/CDPHE: 14 Dec 94
Actual date of submittal: To be determined
Date EPA/CDPHE comments received: To be determined

TM #2
TM Title
TM Status

Modeling
When preparation was concluded: 22 Mar 94 (late)
Projected date of submittal to EPA/CDPHE: 14 Dec 94
Actual date of submittal: To be determined
Date EPA/CDPHE comments received: To be determined

TM #3
TM Title
TM Status

Contaminants of Concern
When preparation is concluded or estimated to be concluded:
20 Sep 94
Projected date of submittal to EPA/CDPHE: 09 Nov 94
Actual date of submittal: To be determined
Date EPA/CDPHE comments received: To be determined

TM #4
TM Title
TM Status

Toxicity
When preparation is concluded or estimated to be concluded:
10 Oct 94
Projected date of submittal to EPA/CDPHE: 12 Dec 94
Actual date of submittal: To be determined
Date EPA/CDPHE comments received: To be determined

Planned Work for January

- Incorrect and extraneous information will be removed from data set.
- The statistical tests on analytical data will be performed.
- The preparation of the CDPHE letter report will begin.
- Final issues on the geological section of RFI/RI Report will be resolved.
- All field records will be finalized.

Problems

None

Open Items

None

2.12 OU 12 - 400/800 AREA

The 400/800 Area comprises assessment and remediation of the following 10 IHSSs within the 400/800 Area: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - northeast and southwest of Building 460 (IHSSs 136.1, and 136.2); Building 881 - Conversion Site (147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

The Phase I RFI/RI Work Plan, which includes both an Environmental Evaluation and a Human Health Risk Assessment, has been completed. Implementation of this Work Plan includes field work and sample analysis. After implementation, a Phase I RFI/RI Report will be prepared. A Phase II Investigation may be performed as necessary. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Based on results obtained during the assessment phase of the project, remediation may consist of the development and execution of a Remedial Action Plan. This process includes review and approval by the regulatory agencies followed by a Record of Decision, release to the public, and implementation of the plan.

OU 12 is within the IA at the Rocky Flats Environmental Technology Site and is managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these OUs are being investigated collectively because of similarities in the field work for these OUs (e. g., surficial soil sampling, in situ radiation surveys, and soil gas sampling). The combination of this work will result in improved oversight, coordination, and reduced costs.

Scope of Work None
Changes This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	08 May 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	05 Oct 92

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	20 Apr 94	Tolling Agreement	11 Mar 99
Submit Final Phase I RFI/RI Report	15 Sep 94	Tolling Agreement	17 Nov 99

December Work Activity Status The only remaining nonintrusive field activities for OU 12 is the Tripod High Purity Germanium Survey. In order to not delay delivery of the nonintrusive summary TM, the Environmental Restoration coordinator has been requested to support this TM by January 1995,

Coordination with the 123 Laboratories to complete Laboratory High Purity Germanium analysis has been ongoing. One hundred-twenty-eight equilibrated surficial soil samples need to be analyzed. A standard for calibration of the detectors was ordered on July 7, 1994.

This standard was received on December 8, 1994. The delivery delay of this standard may cause a schedule delay for analysis. The analysis was originally planned to be completed in November 1994 but is now scheduled to be completed in January 1995. Schedules are being reviewed to find areas that can be compressed to make up this time.

Technical Memoranda

The Draft IA Surface Water and Sediment Field Sampling Plan was submitted to the regulatory agencies on October 26, 1994.

Planned Work for January

- The Tripod High Purity Germanium Survey will continue.
- The Laboratory High Purity Germanium analysis will be completed.
- Efforts on the nonintrusive summary TM will continue.

Problems

None

Open Items

None

2.13 OU 13 - 100 AREA

Cleanup of the 100 Area comprises the assessment and remediation of 14 IHSSs: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2 and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); the Hydrogen Peroxide Spill (IHSS 191), and the Scrap Metal Site (IHSS 197).

Assessment will proceed in three steps. The first step, which has been completed, consists of preparing a Phase I RFI/RI Work Plan. The second step is the implementation of the Work Plan, in which field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. When complete, the Phase I RI Report will include both an Environmental Evaluation and a Human Health Risk Assessment. The third step is a FS, which will determine the best method to remediate the area.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a Record of Decision, release to the public, and implementation of the plan.

OU 13 is within the IA at the Rocky Flats Environmental Technology Site and is managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these OUs are being investigated collectively because of similarities in the field work for these OUs (e. g., surficial soil sampling, *in situ* radiation surveys, and soil gas sampling). The combination of this work will result in improved oversight, coordination, and reduced costs.

Scope of Work None
Changes This Period

Technical Approach **None**
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	15 May 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	12 Oct 92

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	08 Aug 94	Tolling Agreement	06 Jan 97
Submit Final Phase I RFI/RI Report	11 Jan 95	Tolling Agreement	11 Jun 97

December Work Activity Status	<p>Surficial soils data validation is 85 percent complete. Soil gas investigations are about 90 percent complete in IHSSs 134(S), 134(N), 128, and 171. Soil gas investigations are underway in 117.1 (71 percent complete), 117.2 (62 percent complete), and 158 (40 percent complete). Overall the soil gas program has collected 264 samples to date or 38 percent of the total.</p>
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Work continues on the review results for inclusion in the OU 13 TM #2, *Results of Non-Intrusive Field Investigations*.

The preparation of a Statement of Work for Geographic Information System support is underway. In addition, a modification to the subcontractor's contract to allow Stage I activities to be completed and Stage II activities initiated is nearing completion.

Global Positioning System surveying in OU 13 began in November 1994. Obtaining this survey information will become more important in meeting schedule deadlines as time progresses. Additional Rocky Flats Environmental Technology Site personnel will be trained to use the Global Positioning System to expedite surveying sampling locations.

Technical Memoranda

Project

OU 13 - 100 Area

TM #1

TM Title

TM Status

Addendum to Field Sampling Plan

When preparation was concluded: Feb 94

Projected date of submittal to EPA/CDPHE: Feb 94

Actual date of submittal: 03 Mar 94

Date EPA/CDPHE comments were received: 16 May 94

A nonintrusive TM will be prepared in FY 95 that summarizes the nonintrusive field work and recommends Stage II activities for the remedial investigation intrusive field work.

Planned Work for January

- The soil gas investigations will be completed.
- Efforts on TM #2, *Results of Nonintrusive Field Investigations for Operable Unit 13*, will continue.

Problems

None

Open Items

The issuance of Operating Procedure FO.28, Tank and Pipeline Investigations, continues to be an open item.

2.14 OU 14 - RADIOACTIVE SITES

Work at the Radioactive Sites comprises the assessment and remediation of eight IHSSs: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills; and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will proceed in three steps. The first step, which has been completed is preparing a Phase I RFI/RI Work Plan. The second step is the implementation of the Work Plan in which field work and sample analysis will be conducted, data analyzed, and the Phase I RI Report will be prepared. When complete, the Phase I RI Report will include both an Environmental Evaluation and a Human Health Risk Assessment. The third step is a FS, which will determine the best method to remediate the area.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase and FS of the project. This process includes review and approval by EPA and CDPHE followed by a Record of Decision, release to the public, and implementation of the plan.

OU 14 is within the IA at the Rocky Flats Environmental Technology Site and is managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these OUs are being investigated collectively because of similarities in the field work for these OUs (e. g., surficial soil sampling, *in situ* radiation surveys, and soil gas sampling). The combination of this work will result in improved oversight, coordination, and reduced costs.

Scope of Work None
Changes This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	26 Jun 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	19 Oct 92

Future IAG Milestones Through FY 95

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Phase I RFI/RI Report	20 Dec 94	Tolling Agreement	23 Apr 97
Submit Final Phase I RFI/RI Report	23 May 95		29 Sep 97

December Work Activity Status The surficial soils survey was completed in December 1994.

Sodium iodide (radiation) surveys that are required in the OU 14 Work Plan were started on December 4, 1994. The areas included in the sodium iodide survey were covered by the High Purity Germanium surveys. Both surveys are being performed because the regulatory

agencies have requested that similar surveys be performed in OU 10. Work on the review results for inclusion in the OU 14 TM #1, *Results of Non-Intrusive Field Investigations*, continues.

Technical Memoranda

A nonintrusive TM that summarizes the nonintrusive field work and recommends Stage II activities for the RI intrusive field work will be prepared in FY 95.

Planned Work for January

- Preparation of a Standard Operating Procedure for collecting soil samples with a push type sampler will begin.
- Analysis of surficial soil samples is ongoing and will continue throughout January 1995.
- Review of nonintrusive field investigation results for inclusion in the OU 14 TM #1, *Results of Nonintrusive Field Investigations*, will continue.

Problems

None

Open Items

None

2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 is comprised of the following six IHSSs:

- IHSS 178, Building 881 - Drum Storage Area
- IHSS 179, Building 865 - Drum Storage Area
- IHSS 180, Building 883 - Drum Storage Area
- IHSS 204, RCRA Unit 45, Building 447 - Original Uranium Chip Roaster
- IHSS 211, RCRA Unit 26, Building 881 - Drum Storage Area
- IHSS 217, RCRA Unit 32, Building 881 - Cyanide Bench-Scale Treatment

Closure Plans for the IHSSs were submitted to CDPHE during 1988 and 1989. The IHSSs were also included in the IAG. During scoping meetings in April 1992 for the Phase I RFI/RI Work Plan, EPA, CDPHE, and DOE agreed to combine the Closure Plan and RFI/RI processes. In effect, the Clean Closure Performance Standard (6 CCR 1007-3 Part 265.111) will serve as the applicable or relevant and appropriate requirements for the OU 15 RFI/RI inside buildings for hazardous materials, and 29 CFR 1000.46 will serve as the applicable or relevant and appropriate requirements for the OU 15 RFI/RI inside buildings for radionuclides.

Drums containing solids and liquids were stored at the OU 15 IHSSs. Types of waste included oils, coolants, solvents containing chlorinated hydrocarbons (RCRA FO.01 and FO.02 wastes), and waste paints and metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium. No known spills or releases occurred. The current focus is characterization of contamination associated with the OU 15 IHSSs inside buildings, and, if applicable, decontamination of the concrete floors and other facilities at the indoor RCRA units.

**Scope of Work
Changes This Period**

None

**Technical Approach
Changes This Period**

None

**IAG Milestone
Accomplishments**

Submit Draft Phase I RFI/RI Work Plan	01 Jun 92
Submit Final Phase I RFI/RI Work Plan	26 Oct 92
Submit Draft Phase I RFI/RI Report	25 Jul 94
Submit Final Phase I RFI/RI Report	19 Dec 94

**Future IAG Milestones
Through FY 95**

None

December Work Activity Status

The OU 15 Final Phase I RFI/RI Report was submitted to the regulatory agencies on December 19, 1994, approximately two weeks ahead of the IAG milestone.

Within two weeks of the receipt of the EPA comments on the OU 15 Draft Phase I RFI/RI Report, DOE on December 21, 1994, provided written response to these comments.

Technical Memoranda

Project

OU 15 - Inside Building Closures

TM #1

TM Title

TM Status

Field Sampling Plan

When preparation is estimated to be concluded:

Projected date of submittal to EPA/CDPHE: 28 Feb 94

Actual date of submittal: 28 Feb 94

Date comments were received: Preliminary 17 Mar 94 (Formal
04 May 94, EPA, 07 Apr 94 CDPHE)

Planned Work for January

- After achieving approval of the Final Report, the agreement of the process and remedy selection will be pursued. The goal is to have a "Proposed Plan" agreed to in concept, and the remaining tasks planned will be for the OU 15 closure.

Problems

EPA submitted comments on the Draft Phase I RFI/RI Report 91 days after the requested date from DOE. The Final Report was submitted without response to EPA comments.

Open Items

None

2.16 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that comprise a wide variety of plans, procedures, reports, studies, and activities required by the IAG and that apply to general Rocky Flats environmental restoration activities. Activities include, but are not limited to, the Health and Safety Plan, Sampling and Analysis Plan, Treatability Study deliverables, Background Study Plan, Groundwater Geochemistry, Risk Assessment, IA IM/IRA, hydrological characterization, Background Soils Study Plan, Decontamination Facilities, ER Waste handling facilities, groundwater monitoring, Decontamination and Decommissioning, and Program Management Support activities.

Scope of Work None
Changes This Period

Technical Approach None
Changes This Period

IAG Milestone	Submit Draft Background Study Report (Water)	15 Dec 89
Accomplishments	Submit Draft Background Study Report (Soils)	15 Dec 89
	Submit Draft Community Survey Plan	23 Jan 90
	Submit Final Community Survey Plan	22 Mar 90
	Submit Draft Health and Safety Plan	15 Aug 90
	Submit Draft Quality Assurance Project Plan	29 Aug 90
	Submit Draft Standard Operating Procedures	29 Aug 90
	Submit Draft Plan for Prevention of Contaminant Dispersion	19 Sep 90
	Submit Draft Treatability Study Plan	21 Sep 90
	Submit Draft Community Relations Plan	01 Nov 90
	Submit Final Health and Safety Plan	12 Nov 90
	Submit Revised Background Study Report	21 Dec 90
	Submit Final Community Relations Plan	22 Jan 91
	Submit Final Quality Assurance Project Plan	01 Mar 91
	Submit Final Standard Operating Procedures	01 Mar 91
	Submit Draft Radionuclides Discharge Limits Plan	05 Apr 91
	Submit Community Relations Plan Responsiveness Summary	21 Jun 91
	Submit Final Treatability Study Plan	03 Jun 91
	Submit Final Plan for Prevention of Contaminant Dispersion	22 Jul 91
	Submit Final Plan Discharge Limits Radionuclides	16 Sep 91
	Submit Final Plan for Prevention of Contaminant Dispersion and Responsiveness Summary	25 Nov 91
	Submit Draft Historical Release Report	08 Jan 92
	Submit Responsiveness Summary for Radionuclides Discharge Limits Plan	31 Jan 92
	Submit Final Historical Release Report	03 Jun 92
	Submit Annual Treatability Study Report	08 Mar 93
	Submit Sitewide Annual Treatability Study	04 Mar 94
	Draft IA IM/IRA Decision Document	23 Mar 94
	Submit Draft IA IM/IRA Responsiveness Summary	28 Oct 94

**Future Milestones
Through FY 95**

<u>Milestone Name</u>	<u>Planned Date</u>	<u>Approved Extension Status</u>	<u>Forecast Date</u>
Submit Draft Final IA IM/IRA Responsiveness Summary	23 Aug 94	23 Nov 94	02 Nov 94
Submit Final IA IM/IRA Decision Document	23 Aug 94	23 Nov 94	23 Nov 94
Submit Sitewide Annual Treatability Study	14 Mar 95		14 Mar 95

December Work Activity Status Sitewide Activities

Sitewide Treatability Studies

Bioremediation - DOE received the Draft Phase I and II Reports on December 6, 1994.

Rocky Flats Environmental Technology Site staff prepared and inoculated the fourth generation cultures, and four sets of headspace samples were analyzed. The data from these analyses have been computerized and reduced.

The Biodegradation Treatability Study needs a new culture vessel design that will withstand sterilization and will not acquire gas leaks during experimentation. The Rocky Flats Environmental Technology Site personnel is preparing a culture vessel design that can be readily manufactured by a vendor and that can be procured as soon as possible.

Potassium Ferrate Groundwater Treatment Treatability Study (TRU-Clear) - In generation of the draft report, the subcontractor who performed this treatability study inadvertently used preliminary data. The subcontractor is drafting a letter that addresses its concerns regarding the data used in the draft report.

Removal of Actinides from Soil - Chemical leaching experiments for the "Soil Washing Treatability Study" have been deleted from the Work Plan because of a duplication of efforts from other treatability studies. The Chemical Enhanced Steam Stripping Treatability Study has identified an optimum leaching reagent. This identified leaching reagent was combined with rotary scrub operations to evaluate their combined performance.

Chemically Enhanced Steam Stripping - The Los Alamos National Laboratory staff has started to perform column leaching experiments. The purpose of this experiment is to reduce the potential oxidation of the reducing agent at high temperatures (>80°C). These preliminary tests are in support of the technology evaluation to be performed upon receipt of the final report.

Per a meeting on December 20, 1994, between the DOE and the Rocky Flats Environmental Technology Site personnel, the Treatability Study Report Final Phase I Report will now be delivered as an interim report because of its lack of content and scientific explanation. It is expected that DOE will receive this interim report in January 1995. The Final Report will be a compilation of the Phase I and Phase II results with a complete scientific explanation of the results. DOE will receive this report on September 22, 1995.

Annual Treatability Study Report - DOE received the second draft of the report on December 9, 1994. An error was discovered in the program applied to the Rocky Flats Environmental Database System to extract the data for the Annual Report. All the data will be checked again, but at this time, the milestone schedule will not be affected.

Other Sitewide Operations

Community Relations - The DOE contracted the Tulane/Xavier Consortium for Environmental Risk Evaluation to conduct a review and evaluation of risks, costs, and public concerns for remediation, waste management, and decontamination and decommissioning of DOE weapons complex facilities. As part of the project, the University of Colorado and the Community College of Denver will work with the Consortium for Environmental Risk Evaluation to organize documents and conduct focus groups with participants from communities surrounding the Rocky Flats Environmental Technology Site.

The public was invited to an Open House to meet members of the Consortium for the Environmental Risk Evaluation team. The agenda included an overview of the project and the opportunity to interact with the team to discuss and ask questions about the project. The Open House was held on December 13, 1994.

Surface Water Management -Onsite Water Control Drainage Repairs and Improvements - Work continues on the cost estimate for the South Walnut Creek Flood Prevention Project Alternative Number 1 and on the development of engineering scopes for the remaining project alternatives.

Terminal Dam Geotechnical Analysis Completion - The DOE received the Final Geotechnical Analysis Report for Dam Upgrades (Dams A-4, B-5, and C-2). Also included in the report was information that pertains to the Dam Upgrades project plans.

An Engineering Work Plan for Dam Upgrades scope development was finalized.

Detailed Dam Upgrades scope development directions were prepared by the Rocky Flats Environmental Technology Site Ecology and Watershed Management personnel and given to the Rocky Flats

Environmental Technology Site Engineering staff. Completion of the Dam Upgrades scope is scheduled for January 1995 at which time cost estimating work will begin.

South Interceptor Ditch Repair Project - Rocky Flats

Environmental Technology Site personnel who worked on the Surface Water Drainage Systems Environmental Assessment met to discuss alternatives to be used within the Environmental Assessment, to debate the inclusion of specific project options within the Environmental Assessment, and to review activity descriptions progress. During the meeting, two alternatives to the proposed action were suggested for further evaluation. These alternatives include a limited repairs approach and an approach that involves major drainage system replacements and improvements to meet original DOE design standards.

DOE was scheduled to receive the Environmental Assessment draft in late February to early March 1995. This date is no longer valid since the Environmental Assessment scope has been significantly changed to include detailed information pertaining to many of the drainage projects that are still in the project definition development stage. A first cut at the 'Introduction' for the Surface Water Drainage Systems Environmental Assessment was completed. This introduction will be reviewed by personnel supporting Environmental Assessment development.

DOE initiate an IAG with the United States Fish and Wildlife Service. This IAG will have the United States Fish and Wildlife Service identify potential offsite wetland mitigation sites that may be used to support future Site projects that negatively impact wetland areas.

Planned Work for January

Sitewide Activities

- **Bioremediation** - Continue normal operations.

Other Sitewide Operations

- **Community Relations** - Normal operations will continue.
- **South Interceptor Ditch Repair Project** - Continue work on the Draft Surface Water Drainage Systems Environmental Assessment.
- **Industrial Area Interim Measure/Interim Remedial Action Plan** - Continue efforts on the development of the Implementation Plan for the proposed actions.

Problems

None

Open Items

None

SECTION 3.0 ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for Routine Environmental Monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDPHE upon request from the Environmental Management Department and EG&G Rocky Flats, Inc. The schedules are lengthy, and, therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe field work and obtain split or duplicate samples.

3.1 SURFACE WATER AND SEDIMENTS

Each of the Surface Water Stations (approximately 20 stations) is sampled quarterly.

Each of the Sediment Stations (approximately 10 stations) is sampled quarterly.

Each surface water and sediment sample is analyzed for the following parameters:

Contract Laboratory Program Target Compound List Volatile Organic Analysis
Metals Contract Laboratory Program Target Analysis List and Non-Target Analysis List
Field Parameters
Specific Conductivity
Dissolved Oxygen
Major Anions
Radionuclides
Temperature
Total Dissolved Solids/Total Suspended Solids
pH
Nutrients

Additionally, sediment samples are analyzed for Contract Laboratory Program-Semi Volatile Organic Analysis and Contract Laboratory Program-Pesticides/polychlorinated biphenyls Herbicides-619.

3.2 SOILS

Each of the soil stations (located at 1- and 2-mile radii from the site center) is sampled annually.

Each soil sample is analyzed for plutonium and americium.

3.3 GROUNDWATER

A total of 350 groundwater stations were in the groundwater monitoring program the fourth quarter of 1994. This is a decrease from 390 stations sampled in the third quarter of 1994. After review of the 1993 Well Evaluation Report, the regulatory agencies have determined that 62 stations will be eliminated from the groundwater monitoring program. Seventeen previously listed stations have been eliminated from the program because the wells were either dry for eight quarters or were abandoned.

As of December 31, 1994, 347 groundwater stations were sampled. There were approximately 537 quarterly water level measurements this quarter. All water level measurements have been completed. Approximately 215 monthly water level measurements have been completed this quarter. Eleven weekly water level measurements are ongoing.

Radiochemical Parameters

Gross Alpha
Gross Beta
Plutonium
Americium
Strontium
Tritium
Uranium
Cesium

Inorganic Parameters

Nitrate/Nitrite
Total Phosphorous
Ortho-Phosphate
Ammonia
Total Dissolved Solids
Chlorine
Fluorine
Sulfate
Carbonate
Bicarbonate
Total Suspended Solids
Dissolved Contract Laboratory Program and additional metals
Cyanide
Contract Laboratory Program Volatile Organic Constituents

Field Parameters

Specific Conductivity
Temperature
Turbidity
pH

SECTION 4 SUBCONTRACTOR IDENTIFICATION

Subcontractors being used on the Rocky Flats ER Program and the work they are performing are identified on the following list as required by Paragraph 13 of the IAG.

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
1	Assessment	Dames & Moore		CMS/FS Report	Jan 92
1	Remediation	Resource Tech.		B-891 Treatment System Operations Group, Inc. (RTG)	
2	Assessment	Woodward-Clyde		OU 2 RF/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	Feb 92
2	Assessment	Woodward-Clyde	Layne	OU 2 RF/RI Work Plan (bedrock), surficial soils	Mar 93
2	Remediation	RTG		Installation and operation of the water treatment system for South Walnut Creek Phase of OU 2 IRA	Jan 91
2	Soil Vapor Extraction	Woodward-Clyde		Operation of Soil Vapor Extraction	1993
3	Assessment	CH2M Hill		RI Report	Apr 92
4	Remediation	Halliburton	Halliburton	Demobilize	Sep 91
4	Assessment	Parsons/Eng Science	Rust I&E	Implement the Phase I RF/RI Work Plan, includes drilling, sampling radiation surveys, etc.	Aug 92
4	Remediation	Parsons/ Eng Science		Development of IM/IRA Decision Document and conceptual design	
4	Remediation	ERM-Rocky Mountain	Geraghty & Miller	Post-closure monitoring plan	Nov 93
4	Remediation	Halliburton		Develop Treatability Study for Pondcrete	Aug 94

4	Remediation	Halliburton		Develop Treatability Study and Conceptual Design for Pond Sludge Processing	Aug 91
5	Assessment	ASI Blackhawk Geo Walsh & Assoc. Layne Envir. Serv. S. M. Stoller Adv. Terra Testing	Dames & Moore Utility Mgmt. Service	Implementation of OU 5 Work Plan (excluding Environmental Evaluation)	Jun 92
5	Assessment	S. M. Stoller		Implementation of Environmental Evaluation section of OU 5 Work Plan	Sep 92
6	Assessment	Woodward-Clyde Geo Envir	Lane, Ogden,	OU 6 RFI/RI Work Plan and Quality Assurance Addendum	Aug 92
6	Assessment	S. M. Stoller		Implementation of EE section of OU 6 Work Plan	Sep 92
7	Assessment	S. M. Stoller	Walsh & Assoc.	OU 7 revised Work Plan development and implementation. IM/IRA Decision Document development.	Nov 92
8	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	Aug 93
9	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	Aug 93
10	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	Aug 93
11	Assessment	S. M. Stoller		Implement the RFI field work and report writing	Jan 94

<u>OU</u>	<u>Task</u>	<u>Organization</u>	<u>Contract No.</u>	<u>Task Description</u>	<u>Start Date</u>
12	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA CUs	Aug 93
13	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	Aug 93
14	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for nonintrusive field work for the IA OUs	Aug 93
15	Assessment	ERM-Rocky Mtn.	G. S. Miller, Inc.	Implementation of the RFI/RI Work Plan	Mar 93
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	Adm. Record	QuantaLex		Maintain IAG Administrative Record	Oct 90
SW	Geo. Char.	Jacobs Eng		Well Abandonment and Replacement	Mar 93
SW	Geo. Char.	Colorado State University		Support master's thesis of Structural Geology, of Front Range Area near Rocky Flats	Nov 91
SW	Geo. Char.	S. M. Stoller		Prepare 1992 Annual RCRA Report and Addendum	Jan 93
SW	Geo. Char.	Colorado School of Mines		Masters-level training program in Engineering Science and Engineering	Aug 92
SW	Geo. Char.	Woodward-Clyde		Support for the Soil Water Monitoring System	Feb 93
SW	Geo. Char.	Colorado State University		Sequential Extraction	Apr 92
SW	Geo. Char.	University of Colorado		Soil Monitoring Vadose Zone	Jun 92

<u>OU</u>	<u>Project</u>	<u>Contractor</u>	<u>Sub- contractor</u>	<u>Work Description</u>	<u>Start Date</u>
SW	Geo. Char.	S. M. Stoller		Spatial Analysis/Computer Support	Mar 93
SW	Geo. Char.	Woodward Clyde	SAIC/Wright Water		Jan 93
SW	Monitoring	IT Corporation		Analytical Services for groundwater, surface water, and sediment	Jul 90
SWQA		Support	SAIC	Develop and implement QA program and field operations oversight	Dec 90
PM Support		S. M. Stoller		Program Management Support	Oct 92
PMQA Support		SAIC		Provide Quality Assurance /Quality Control support to ER Program	Nov 92

ACRONYMS

CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMS	Corrective Measures Study
DOE	U. S. Department of Energy
EPA	U. S. Environmental Protection Agency
ER	Environmental Restoration
FS	Feasibility Study
FY	Fiscal Year
IA	Industrial Area
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
M	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
OU	Operable Unit
RCRA	Resource Conservation and Recovery Act
RFFO	Rocky Flats Field Office
RFI	RCRA Facilities Investigation
RI	Remedial Investigation
TM	Technical Memorandum